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FRANK P. FOSTER, M.D.

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# LIST OF CONTRIBUTORS TO VOLUME LVII.

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Those whose names are marked with an asterisk have contributed editorial articles.

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 Brooklyn.  
 WYMAN, HAL C., M. Sc., M. D., Detroit.

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Fig. 2.



Fig. 1.

DR. TAYLOR'S CASE OF KELOID.

## Original Communications.

## A REMARKABLE CASE OF KELOID.

By R. W. TAYLOR, M.D.,

SURGEON TO BELLEVUE HOSPITAL, NEW YORK.

UP to the present time, according to my reading, the case of keloid published by the late Dr. F. F. Maury\* is the most remarkable on record as regards the size of the lesion. In that case the keloidal tumor was fungoid in appearance and of about the size of a tomato. Other marked cases have been published in which the lesion, when of round form, has been of about the size of an English walnut, or when in the form of a band or stripe two or three inches long and perhaps an inch or more wide. As ordinarily seen, keloid is, as stated by Crocker,† "a firmly elastic tumor of cicatricial aspect, sharply defined, springing up abruptly from the healthy skin, and projecting from a sixteenth to a quarter of an inch or more." From these facts it will be seen that the case here illustrated and described is a most extraordinary one, and well worthy of being placed on record. The history of the patient presenting these new growths is as follows:

N. C., a rather light-complexioned colored woman, is twenty-three years old, born in the United States, and the mother of three children. She is perfectly healthy, came of good stock, and knows of no ancestors or relatives who have suffered from any form of connective-tissue new growths. When she was about ten years old she suffered many hardships, and was the drudge of the family, who lived in Virginia. The patient was required to go into the woods for fuel, and, having no clothes on above the waist to protect her, was frequently stung and torn in linear stripes by the briars and bushes through which she had tediously and guardedly to make her way. In the excoriations and bruises thus produced undoubtedly originated the irritative process which has resulted in much marked fibro-cellular new growth, as may be seen, nearly encircling the patient's waist. For brevity and simplicity we will consider the tumors in their order from above downward. Figs. 1 and 2 show a large, fist-sized lobulated tumor, which is attached to the right lobule in its entirety and to a segment of the helix. This tumor, like the rest, is of dark-brown color, mottled with very black spots and patches. It is densely firm, and may be said to be moderately elastic. It causes much inconvenience from its weight, and forces the patient to lie upon her back or left side. This tumor is the fourth of its series, which are said to have been of uniform size. The first one began upon the lobule around the hole pierced for an ear-ring about eight years ago. It was removed seven years ago, and after a short interval evidence of return was seen, and a new tumor developed in about two years. Four years ago tumor number two was removed, and it was promptly followed by number three, which in turn was removed two years ago. The third operation was soon followed by a fourth new growth, and to-day we see the tumor here represented, which certainly, judging by its density of texture, must weigh between half a pound and a pound. Over the middle of the left clavicle a hickory-nut-sized keloid may be seen.

The pedunculated, lobulated, and disc-like tumors on the anterior aspect of the hypogastric region and lateral portions of the trunk are so naturally shown in Fig. 1 that little descriptive text is necessary. The inspection of these tumors makes a marked impression upon those viewing them. To some they give the impression at first that the woman's bowels have become extruded, and to the minds of others the resemblance to a mass of large beef kidneys is suggested. The tumor on the left breast was disc-shaped and attached to the thin edge of the flattened right breast. (It was removed a day or two ago.) The mass of lobulated tumors seated to the right of the median line and around the umbilicus is irregular and, as said before, very suggestive, except as to color, of a conglomeration of beef kidneys. Under the right arm in Fig. 1 is seen an immense snake-like tumor, the other end of which is seen on the right of the picture in Fig. 2. On the left side we see the end of another long and very thick tumor which ends near the middle line on the back. A predecessor to this mammoth tumor was removed twelve years ago, but the morbid process recurred. These tumors on the back have suggested to several gentlemen the resemblance to a copperhead snake coiled up. The description given of the color and density of the tumor upon the ear applies exactly to those on the trunk. In its development the ear tumor began as a single mass; the trunk tumors, however, began in a congeries of pea-size masses, which grew, fused together, and developed into the lesions depicted.

During the growth of these tumors pain was not present until they had reached such a size that they had become burdensome. Then, probably from traction and upon pressure, pain of a dull, aching character was felt, for which the patient sought relief in small but repeated doses of morphine. Now that she is in the hospital (Bellevue), we are forced to give her this narcotic, but it is doled out very sparingly.

Microscopical examination of portions of the ablated tumor showed the usual appearances of keloid as given in the works of Kaposi and Croker.

Such, then, is the brief history of this most remarkable case. The origin of these tumors is undoubtedly due to the traumatism already mentioned. By the authors who recognize a false and a true keloid it will be termed a case of the former variety. For my part, I have never been quite satisfied with this division, since the histological changes in both are precisely similar, and I am glad to see that Crocker\* thinks that "the distinction is probably more artificial than real." The fact of the matter is this: If a history of traumatism in a given case of keloid is obtainable, it is called false keloid; if such is absent, it is called true keloid. It is very probable that all keloids begin in traumatism, and that in some cases the local injury is so slight and ephemeral as to pass unperceived and unappreciated, and in others that the patient's memory is at fault. The rapidity of growth in this case is worthy of mention.

It is not unusual in keloid which has developed on scars to see multiple lesions. In Schwimmer's case, which is probably one of scar keloid, there were one hundred and five lesions. I have a picture of a patient of my own, a woman who suffered from a deep and generalized ulcerative syphilide, in which more than two hundred keloidal plaques formed. It must be remembered, however, that scar keloid, particularly in syphilitic scars, is not infrequently of ephem-

\* *Photographic Review of Medicine and Surgery*, October, 1870.† *Diseases of the Skin*, London, 1888, pp. 481 et seq.\* *Loc. cit.*

term simply descriptive of a condition and in no sense implying any pathological change.

We now come to the consideration of the different kinds of white cells found in normal circulating blood, and here it is that Ehrlich and his disciples have laid the foundation for all subsequent progress in the differentiation of five cardinal forms, the comprehension of which will be facilitated by reference to the accompanying schematic drawing (Fig. 1).

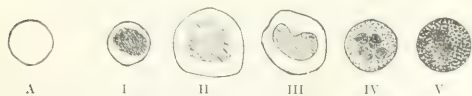


FIG. 1.—A, Red blood-cell. White blood-cells: I, Lymphocyte. II, Large uninuclear leucocyte. III, Transitional form. IV, Multinuclear, neutrophilic leucocyte with  $\epsilon$  granulations. V, Eosinophilic cell with a granulations.

I. *Lymphocytes*.—Uninuclear small forms, most nearly approaching the red cells in size, and having a single deeply staining nucleus nearly filling the cell body. The protoplasm of the latter is represented by a faint circular rim, sometimes crescentic and visible only at one side, sometimes spindle-shaped, having the nucleus in the middle. These lymphocytes were first proved by Virchow to be derived exclusively from the lymphatic glands, whence their name. They contain no stainable granules in their protoplasm and constitute about twenty per cent. of the white cells in normal blood. Einhorn\* states that within normal limits they may be increased even as high as forty-four per cent., but not much decreased. In pathological cases, however, their number may be markedly reduced, not only relatively so as to be only ten per cent. or even five per cent., but also absolutely decreased (diabetes, phosphorus poisoning, phthisis, hæmorrhagic diathesis, etc.). In lymphatic leucæmia they are both relatively and absolutely increased, and are of great diagnostic importance, fifty per cent. or more being found in such cases, or even ninety-three per cent. in one fatal case. In stained specimens the lymphocytes vary often considerably in different cases, sometimes presenting small dark, in others slightly larger and lighter nuclei with more surrounding protoplasm. Variations often occur rapidly in the same case, but the significance of the change is not known. This occasionally complicates the usually easy differentiation of forms I and II. In those instances where the cell body has a spindle shape it perhaps presents its original form in the lymph gland.

II. *Uninuclear Leucocytes*.—Larger forms of variable size up to twice the diameter of a red cell, having, when stained, a single large ovoid, pale nucleus, and a well-marked border of protoplasm. They are derived from the medulla of the long bones, and also, Ehrlich maintains, from the spleen. In normal blood they are not numerous, constituting with III only five to seven per cent. of the white cells. Increased numbers indicate the presence of cachexia. No stainable granules occur in the protoplasm in normal blood.

III. *Uninuclear Transitional Form*.—This cell is derived from II and is similar in size and color to its progenitor.

The cell body, however, is slightly smaller and its nucleus more or less kidney-shaped, which is the first step toward a division of the nucleus. According to the degree of the further nuclear development, it may show the first traces of neutrophile  $\epsilon$  granulation in the protoplasm between the horns of the nucleus.\* From this is evolved the following form, which is the last of this subseries:

#### IV. *Multinuclear Neutrophile Form with $\epsilon$ Granulations*.

—These contain a nucleus of polymorphous figure resembling the letters S V Y Z E, which stains rather feebly, or else several small darkly staining nuclei just held together by threads, or in the mature form entirely separate. They contain in their protoplasm numerous fine dust-like granules, which stain only with stains of neutral reaction, resulting from a mixture of acid and basic colors; hence they are called by Ehrlich polynuclear neutrophile cells. They are of variable size, larger than red cells, but smaller than the large mononuclear from which they are derived. They constitute sixty-five to seventy per cent. of the white cells, are capable of emigration from the blood-vessels into the tissues, and are alone found in pus. In leucocytosis they are the only form of white cell which is increased. The neutrophile granules are not visible in unstained specimens, nor are they made apparent by any other stains than those of neutral reaction. Now, although the uninuclear leucocyte does not show neutrophilic granulations, it possesses all the other morphological and microchemical characteristics of the multinuclear cell. In leucæmic blood we find the links necessary to definitely determine their relationship, for we find cells with very sparse  $\epsilon$  granulations, which in their habitus occupy an intermediate position. Therefore Ehrlich believes that the multinuclear is evolved

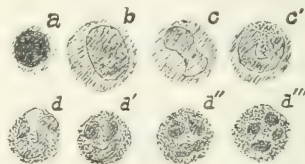


FIG. 2.—Drawn from a single slide. Showing development of uninuclear into multinuclear leucocytes. *a*, lymphocyte, size of red cell, introduced for *c* comparison; *b*, large uninuclear leucocyte; *c*, transition form; *c'*, transition form with neutrophile granulations between the horns; *d*, *d'*, *d''*, *d'''*, multinuclear neutrophilic leucocytes showing various stages in the development of the nuclei and the neutrophile granulations.

from the uninuclear form. He shows that while the original large nucleus of the uninuclear cell is developing by the progressive stages above mentioned into the four or five nuclei of the multinuclear form, other changes are taking place in the cell body by which it gradually assumes the neutrophile granulation, and its protoplasm acquires an increased contractility, which gives the cell the amoeboid motion necessary to pass through the walls of the vessels in inflammation. It seems probable that this transformation or development takes place after the uninuclear cell reaches the general circulation, and that the blood-forming organs send out their product as raw material to be devel-

\* Spilling. *Ueber Blutuntersuchungen bei Leukæmie*. Inaug. Diss.,



oped in the nutritive media of the circulating plasma. If this is so, it follows, theoretically, that altered conditions of the plasma should affect the development of the cells. This is exactly what Ehrlich shows to occur in severe cachexiæ (tuberculosis, carcinoma), where in the impoverished blood there seems to be a stoppage or prolongation of the developmental process, for in cachexiæ the uninuclear outnumber the multinuclear; in leucæmia the examples of the intermediate stages are well marked and very numerous. In health these changes presumably take place so rapidly as to disclose few traces of the metamorphosis.\*

*V. Eosinophile Cells with a Granulations.*—These are the white cells which strike one at once in a fresh specimen of blood as containing rather large, yellowish, fat-like granules. They are not related to the former series having their origin in the marrow. Their granules are easily stained by all acid colors, such as eosin, whence their name. Thus stained, the granules appear of a purplish-red color, noticeably larger than those of the neutrophile cells, while their nuclei, one to three in number, stain less darkly than those of the multinuclear leucocytes. If an eosinophile cell has been broken in the process of spreading the cover glass, the granules lie loose in groups and have been mistaken by some observers for micrococci. From these, however, they can be easily distinguished by their staining affinities. Eosinophile cells are variously estimated as constituting two to four per cent. and five to seven per cent. of normal blood. It is probable that the former figures are most correct. They are present in large numbers both in blood and sputum of asthmatic patients, also in prostatic secretion, and in the blood of patients with certain affections of the skin (lymphodermia, pemphigus, etc.); therefore Ehrlich's † dictum that they are formed exclusively in the marrow, and that an increase in their numbers points to chronic changes in the blood-forming organs, is now under discussion. Their absolute number is often increased to a high degree in myelogenous and lieno-myelogenous leucæmia. On the other hand, the eosinophile cells are decreased in severe cachexiæ (phthisis, lupus, vitium cordis, anæmia, diabetes, carcinoma ‡)—that is, in those cases in which leucocytosis exists with increase of the mononuclear and polynuclear forms. Von Jaksch believed that their increase alone, without other changes, was presumptive evidence of beginning leucæmia, but they have since been found to be increased in numerous other conditions.\* Von Jaksch also bases the diagnosis of his anæmia infantum pseudo-leucæmia in part upon their total absence or greatly lessened numbers.||

Passing now from the consideration of normal blood, there remain to be mentioned several stainable forms which, as they occur in the blood only in pathological conditions, are also of great diagnostic importance.

*Mast-cells, having  $\gamma$  granulations, easily stainable in*

basic aniline colors alone (basophile), and appearing only in the blood during pathological processes (leucæmia), and then only in very small numbers.\* They were formerly supposed to be derived from the lymph glands. Ehrlich opposes this view. He has found them in large numbers in a case of myelogenous leucæmia.†

*Myelocytes.*—These are large uninuclear cells differing from those found in normal blood in that they contain  $\epsilon$  or neutrophile granulations. While they are normally formed and found in the bone marrow, in cases of myelogenous leucæmia alone do they escape into the circulating blood in considerable numbers. Their great value in diagnosis is at once apparent.‡

*Nucleated red cells*, whose nuclei are stained by any of the agents which stain the nuclei of the white cells. They are easily distinguished from the latter cells, in that their surrounding zone of protoplasm takes the same stain as the hæmoglobin of the other red cells. Three forms are distinguished, corresponding to the three forms, or more properly speaking sizes, of non-nucleated red cells—microcytes, normocytes, megalocytes—and are called respectively microblasts, normoblasts, and megaloblasts. The microblast, found and described by Ehrlich,§ is very rarely seen. Normoblasts, as the prefix implies, are nucleated red cells of the average size of the ordinary red cell. The nuclei may be uniformly dark or there may appear an irregular and heavily beaded network upon a lighter background within the nucleus. It is believed with Rindfleisch that the nucleus escapes from the red cell after it is fully formed, and, after gathering about itself hæmoglobin for another perfect cell, again escapes to repeat the cycle. Free nuclei may often be found in the stained blood of certain pathological cases, and nucleated reds are likewise seen in which the nucleus is of dumb-bell shape, in the process of division, or where it has divided into two, three, or four nuclei before escaping. The nucleated red cell may be found in all forms of advanced anæmia, whether traumatic, secondary, or primary (pernicious); also in acute metallic poisoning (As, P, etc.), and in leucæmia.

Megaloblasts or giantoblasts are very large nucleated red cells, having a paler reticulated nucleus of much larger size than those of the last class. The surrounding zone of hæmoglobin also often stains badly and has a dingier color. Ehrlich believes these to be a return to an embryonal type. It is also thought that, after the escape of the nucleus from the cell, it dies and thus ceases to continue the formative cycle. They are therefore pathognomonic of very serious disturbance in the cytogenic organs, and are found only in the late stages of leucæmia and pernicious anæmia. Still further, their presence in the blood, taken together with certain other factors, is absolutely necessary to the establishment of the diagnosis of pernicious anæmia.

Turning now to the practical results of these examinations, we are at once confronted by the question: Having

\* Ehrlich. *Loc. cit.* *Ztschr. f. klin. Med.*, Bd. i.

† *Ztschr. f. klin. Med.*, Bd. i.

‡ Alderhoff. *Prag. med. Woch.*, 1891, No. 8.

§ Müller u. Rieder. *Archiv f. klin. Med.*, Bd. 48.

|| Ueber Diagnosis u. Therapie d. Erkrank. d. Blutes. *Med. Wander-Vorträge*, 21, Berlin, 1890.

\* Ueber Mastzellen. Inaug. Diss., Berlin, 1880.

† Ehrlich. *Deut. med. Woch.*, 1886, p. 871.

‡ Ibid.

§ Ehrlich. *Verhandl. d. Gesellschaft d. Charité Aerzte z. Berlin*, 1880.

discovered a certain combination of factors in the condition of the blood, what definite diagnostic conclusions can be drawn from it? It has not been within the scope or purpose of this paper to treat of the familiar methods of estimating the corpuscular richness of the blood or the percentage value of its hæmoglobin, the importance and necessity of such estimates having been long ago established and conceded. Nor is it contended that a diagnosis can always be made by these methods of staining without careful consideration of the clinical course and objective symptoms in any given case, but that used to supplement the usual methods, which too often leave us in doubt, they are invaluable in definitely confirming and often in alone determining the diagnosis. Eliminating largely, therefore, such factors as are still mooted and incorporating chiefly those which are generally accepted, we arrive at the following basis for diagnosis:

*Chlorosis.*—Red cells in the majority of cases nearly normal in numbers, of average size and good shape, but the individual corpuscles strikingly pale, with relative decrease in the percentage of hæmoglobin. Rouleaux well formed, leucocytosis slight if present. In rarer cases poikilocytosis and marked reduction in the numbers of the red cells, more likely to be present if the reduction in hæmoglobin is below sixty per cent. This latter condition often considered a mixed form and called chloro-anæmia.

*Simple Anæmia, Primary.\**—Decrease in the percentage of red corpuscles and hæmoglobin to approximately the same degree. Variation in size and shape of the red cells. No leucocytosis or change in white cells.

*Secondary Anæmia.*—Decrease in the percentage of the red corpuscles and hæmoglobin to approximately the same degree. Imperfect formations of rouleaux. Leucocytosis, hence increased numbers of polynuclear neutrophilic cells, but also numbers of large uninuclear leucocytes without granulations. Often marked variation in the size and shape of the red corpuscles, microcytes predominating. Poikilocytosis or schistocytosis. Nucleated red cells of normal size (normoblasts). The intensity of these changes varies considerably with the degree of the anæmia.

*Pernicious Anæmia, Primary.*—Rouleaux not formed. Enormous decrease in the number of red cells, with distinct excess of the hæmoglobin percentage. Very marked variations in shape, poikilocytes or schistocytes, also in size with microcytes and megalocytes; the latter largely predominate. Large red cells with very large nuclei, megaloblasts or giantoblasts. Never absolute leucocytosis. The excess of megalocytes and presence of megaloblasts are considered to be diagnostic.

*Pseudo-leucæmia.*—In the early stages no noticeable change. In the later stages well marked signs of simple anæmia, with rather decided simple leucocytes, clearly distinguished, however, from leucæmia by the absence of leucæmic changes in the white cells.

*Leucæmia in General.*—The earliest sign in the blood of a beginning leucæmia seems to be an increase in the eosinophile cells. It has been thought that in connection

with the clinical history a probable diagnosis could be advanced upon this basis, but it must be remembered that the eosinophile cells have now been shown to be increased in many other conditions.\* In advanced cases there is an excessive and persistent increase of leucocytes, the ratio of white to red varying from 1 to 20 to 1 to 1. Reduction in the red cells and correspondingly in hæmoglobin. Faulty formation and decreased resistance in the individual red cell, with poikilocytosis. Formation of Charcot's crystals in the drawn blood on standing.

Leucæmic cases may be divided into four classes, but mixed cases most commonly occur.

*Lymphatic Leucæmia.*—Predominance of small uninuclear lymphocytes over all other white cells. Eosinophile cells decreased. No nucleated red cells. Proportion of white to red seldom above 1 to 20, even ante mortem. Marked anæmia.

*Lienal Leucæmia.*—Predominance of large uninuclear leucocytes (without neutrophilic granulations). No nucleated red cells. No myelocytes. No increase of eosinophile cells. Cases of pure lienal leucæmia have been reported, but the exclusive involvement of the spleen without the involvement of other cytogenic organs has been denied.

*Myelogenous Leucæmia.*—Characterized by the appearance of abnormal forms—i. e., myelocytes or large uninuclear leucocytes with neutrophilic granulations formed in the marrow and present in the blood. Eosinophile cells much increased, including large forms which have escaped from the marrow. In the earlier stages normoblasts; in the later stages megaloblasts. In rare cases the red cells show division of their nuclei.

*Lieno-myelogenous Leucæmia.*—The most common of the mixed forms presenting the characteristics of both the lienal and myelogenous forms.

Upon these lines the diagnosis of diseases of the blood or blood-forming organs is becoming firmly established. The subject is a living one. Each month brings new light and reveals further possibilities. Questions once mooted are passing from debatable ground into the realm of certainty. To the scientific student these methods of staining open up a most interesting and fascinating field for investigation. To the general practitioner and careful diagnostician the following advantages are presented:

1. Earlier and more exact diagnosis.
2. More definite prognosis.
3. More intelligent and therefore more active and successful therapeutic efforts.

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- 19 WEST FORTY-SIXTH STREET.

## THE SUBCONJUNCTIVAL APPLICATION OF COCAINE IN EYE OPERATIONS.\*

By CARL KOLLER, M. D.

It is now eight years since I published my first experiments about the anæsthetic properties of cocaine and its application in eye surgery. My suggestion to use instillations of a cocaine solution to produce anæsthesia for operations on the eyeball met with general approbation, and subsequently the usefulness of cocaine in other branches of surgery was explored by other investigators.

While in general surgery the hypodermic application of cocaine for the production of local anæsthesia became very extended, in eye surgery the original method of instilling was generally retained, as the organ seems particularly suited for this way of application.

Right in my first experiments with animals, and later in eye operations, I noticed the fact that by instillations of cocaine we were sure to achieve an anæsthesia of the superficial tissues only. I could scratch, or burn, or cauterize the cornea without the slightest pain, but the moment the iris prolapsed or was touched with an instrument, animals and human beings gave brisk signs of pain. In a great number of cases I succeeded in making the iris anæsthetic by beginning the instillations half an hour before the operation, but I did not succeed every time. In my visits to eye clinics of different countries I found that only in a very few of them were instillations begun a sufficient time before the operation to achieve this end. This circumstance, in my opinion, detracts from the value of cocaine anæsthesia in a great number of eye operations. The patient does not care

which tissue hurts him. He says he has pain, and calls cocaine anæsthesia a beautiful but delusive dream. The pain on touching the iris is especially troublesome in cataract extractions. The patient, who has been promised a painless operation and did not experience any pain in cutting the cornea, is suddenly thrown out of his illusions of a painless operation, makes sometimes a sudden jerk, and may thus endanger the success of the operation.

In squint operations one can notice every time that the patient does not feel the conjunctival cut, but does react quickly when the tendon is seized with the hook or forceps and divided.

Very soon after my first communication I began using subconjunctival injections in squint operations, and during my time of assistantship to Professor Snellen I performed many tenotomies and advancements of muscles, all with the subconjunctival application of cocaine. If the latter is applied in this way, the operation can be made perfectly painless, and we have the double advantage of sparing the pain to the patient and not bringing discredit on a good drug.

I proceed in the following way: After having rendered the conjunctiva anæsthetic by the instillation of a four-per-cent. solution, I insert the speculum and, by means of a mouse-toothed forceps, seize a fold of the conjunctiva over the tendon to be operated upon. The needle of a hypodermic syringe is inserted through this fold into the subconjunctival tissue as deep as possible, and a few drops of a two-per-cent. solution of cocaine are injected. For injections I use a two-per-cent. solution in preference to a four or five-per-cent. solution. I consider 0.05 (two thirds of a grain) as the utmost limit for adults that can safely be applied as an injection if the locality of injection is on the head, while on the limbs double the amount may be allowed. But I am careful to keep a good part within this limit. With a solution of two per cent., and even of one per cent., an entirely satisfactory anæsthesia can be produced if the solution is well distributed over the field of operation, and I attribute it to this use of weak solutions that I have not encountered yet any alarming accidents from the use of cocaine.

After the injection the speculum is removed from the eye and the eye is closed, so that the artificial œdema of the conjunctiva is given time to disappear, which it does in about five minutes. The disappearance may be helped by a little rubbing. If you have prepared a patient in this way, you can perform the operation without the slightest pain—whether it be tenotomy or advancement.

In iridectomies and cataract operations I have been in the habit of instilling a four-per-cent. solution every five minutes, beginning twenty to thirty minutes before the operation. During this time I keep the eye closed to prevent evaporation, with subsequent haziness and desquamation of epithelium. In most cases I have succeeded fairly well in making the iris anæsthetic. But I have not succeeded every time, and especially the hard eyes in subacute or chronic glaucoma have withstood the action of the drug, as the latter in this class of eyes is not absorbed by the cornea in sufficient quantity to penetrate into the anterior chamber.

In the beginning of this year Professor Snellen, of

\* Read before the meeting of the American Ophthalmological Society, at New London, July 21, 1892.



Utrecht, communicated to me in a private letter that he was using the cocaine in the form of subconjunctival injections for cataract operations.\* He writes: "In cataract operations we inject the cocaine under the conjunctiva on the upper part of the eye, and the artificial chemosis makes it easy to form a conjunctival flap, which latter proceeding I have adopted, since I operate always without iridectomy."

Following this suggestion, I have used the subconjunctival application of cocaine in a number of cases where I had to perform the operation of iridectomy or extraction of cataract, and I am well satisfied with the results attained. The anæsthesia was complete; there were no disadvantages. I proceed in the following way: First I instill a few drops of a four-per-cent. solution and wait several minutes, after which the instillation is repeated. Now I insert the speculum and, by means of a sterilized hypodermic syringe, inject a few drops of a two-per-cent. solution of cocaine under the conjunctiva, next to that part of the cornea where I intend to make the section. This will be the upper part in most cases. The solution has been sterilized previously by boiling it, and the hypodermic syringe by rinsing with alcohol and then with a two-per-cent. carbolic-acid solution. After the injection the speculum is removed, and one has to wait from five to ten minutes for the artificial œdema at the place of injection to subside, as it possibly would be in the way of the knife. If it is slow to disappear, gentle rubbing will hasten it. The anæsthesia thus attained is complete, and will contribute to diminish that percentage of prolapse of the iris that still adheres to our statistics of cataract extraction. My experience with the subconjunctival application of cocaine in iridectomies and extractions of cataract is so far limited, only comprising two cases of cataract, one case of chronic glaucoma, and two cases of iridectomy for other causes. Nevertheless, I venture to consider this method a safe one, having to my knowledge no disadvantages, and therefore recommending it to you for a trial.

32 EAST SIXTIETH STREET.

## THE CURE OF THE MORPHINE HABIT BY SULPHATE OF CODEINE.

THE motive for concealing the name of the author, as well as the name of the patient, in the present paper arises partly from the belief that the facilities for observing the course of the case and the train of subjective symptoms related are such as to leave the impression that the account must have been drawn from a direct personal experience; while, among a circle of immediate acquaintances by whom this paper might chance to be read, the publishing of the author's name would, from known associations, at once reveal the identity of the patient.

Nothing so detracts from the respectability of genuine reformation as the constant vaunting of discreditable ante-

cedents in the face of victory. Be it said to the credit of the confirmed opium victim that he, of all others, is least prone to indulge in this sort of deplorable pride, even in those rare instances where the breaking of the habit single-handed represents an inward struggle and achievement compared with which the exploits of Napoleon sink into insignificance. To prevent, then, the imputations above hinted at on the one hand, as well as to avoid any violation of confidence on the other, the exceptional course is adopted of offering this paper anonymously.

Whoever has been placed in a position to keenly appreciate the dregs of bitterness in the opium habit must have an increased respect for the drug as well as a wholesome fear of it. But a knowledge of its fearful power for evil should not efface a recognition of its enormous utility. Its power over nerve tissue in these two relations is beyond comparison with that of any other known agent.

If there is any fact in Nature which the physician should recognize more than another it is that *there is nothing inherently good in pain*. It is the unerring index to an injury and the cry for protection. As it is, in some form or degree, an almost invariable accompaniment of every disorder of function or morbid change of structure, its demands can only be disregarded with circumspection.

This monitor continues its warnings so long as there is any hope of benefit from measures to mitigate it, or until its appeals are drowned in death and destruction of tissue.

An aching tooth ceases to ache when suppuration and destruction of the pulp supervene. The acute pain of a palmar abscess, if left alone, lasts till the delicate organ is wrecked in suppuration and necrosis of tendon and periosteum.

Acute peritonitis, unrelieved, holds the patient in agony till a sudden cessation of pain and an ominous quiet indicate internal suppuration and gangrene.

An acute meningitis continues its piercing appeals till effusion takes place and pain is drowned in coma.

From this direct association of pain with reparable injury is derived the well-known principle of therapeutics that measures which relieve suffering are calculated in a corresponding degree to protect from injury by allaying irritation and inflammation. The careful stopping of a cavity may save the pulp of the tooth. Early incision and the relief of tension may stop the pain of a palmar abscess and save the hand. Opium in all painful abdominal affections\* and even in the painful stage of meningitis, besides relieving pain, has a most salutary effect; while, in the late stages, or where from intense sepsis there is absence of pain, with necrosis from the start, it is worse than useless.

While it is at times obligatory to allow pain to endure, it can only be for ulterior and more important objects. Because of the imperfect means at our command, it is impossible to relieve every passing discomfort without often in-

\* Professor Snellen has also described his way of proceeding in a communication concerning cataract operations in the *Annales Oculistiques*, January, 1892, p. 73.

\* There is scarcely an exception. How much suffering and disaster might have been avoided had opium in labor been popularized as much as that abomination, ergot! As a palliative and oxytocic I have always found morphine in labor far more convenient and superior to chloroform. The intelligent physician will no more give ergot in labor than he will give it to facilitate the passage of a gall-stone.

curring the risk of some more serious inconvenience in the future. It is better to endure a little rheumatic twinge than take a hypodermic of morphine and be sick at the stomach all next day.

Yet the great principle enunciated at the start stands fast nevertheless, and, as the existence of pain is almost co-equal with the presence of disease, so it is that opium, the most powerful drug at our command for relieving it, stands at the head of the pharmacopœia.

The history of the inception and course of the opium habit is always much the same. It is first a fascination, which gradually merges into a daily necessity. I say this of the *opium habit*. Fortunately for humanity, there is a wide variation in this respect, so far as the first use of the drug is concerned. Those to whom the first dose of opium proves dangerously seductive must be the rare exceptions. To a healthy person unaccustomed to its use, the fitful slumber, the disagreeable languor, nausea, and headache apt to follow a full dose of opium generally fully counterbalance the slight pleasurable excitement at first derived. Its use is not apt to be persisted in unless demanded for the relief of visceral pain or some nervous irritation. Like the tobacco habit, the opium habit with most people requires to be learned, and a longer period of education is required with the latter drug than with the former. The period of most acute diseases is too short for any serious danger in this respect. Besides, with the natural relief from pain and the rapid re-establishment of nutrition at the time of convalescence, the withdrawal of the anodyne is scarcely noticed. In those cases of typhoid fever attended with much restlessness and nervous irritation it may be used continuously in moderate doses for a period of two or three weeks with the happiest result. The peculiar vague and deep-seated unrest in this condition resembles in character, but not in degree, the feeling produced by the withdrawal of opium from a person accustomed to it. The accuracy with which morphine allays this distress I believe to afford a strong presumption in favor of its use. Experience seems to me to prove that its use in these cases is far more protective and much more conservative of nervous force than any special antipyretic.

As an account of those rare cases where the first use of opium comes like a spiritual revelation, nothing can ever exceed the classic description by De Quincey.\*

Perhaps some original peculiarity of a high-strung nervous constitution, coupled with the remote effects of early privation and suffering and an existing painful neuralgic affection of some weeks' duration, served to render him an easy captive.

It is only a subject of this sort, or one who has become sufficiently habituated to the drug to make it somewhat of a necessity, who is prepared to thoroughly appreciate the beneficent sensations which it produces. A lady once told me that her dose of morphine always made her feel "so perfectly natural," "I know that to be the way one always ought to feel," etc. Imagine one of these people deprived of the accustomed allowance for eighteen or twenty-four

hours. There is a feeling of deep unrest, a volume of bodily sensations—all of discomfort. The pupils are dilated, the eyes and nose watery. He sneezes, yawns, and stretches. There is intense weariness on endeavoring to fix the attention or engage in conversation. The weariness deepens into a dull, gnawing ache in the lumbar region, down the sciatics, and especially in the calves. He forces and drags himself about, discharging his duties in a perfunctory and half-hearted manner. Every difficulty or trouble seems fearfully real. The mind is gloomy and he is discouraged.

He resorts to the usual solace and support—that is, the prick of a needle—and in ten minutes\* there is a change in his spirits as subtle as a simple change of opinion. He now stands firmly on his feet; the tread is again elastic. There is a feeling of self-reliance and physical well-being which he feels must be a simple revival of some primeval state of health.† The intellect is not clouded by drowsiness or dreams of grandeur and glory, but there is simply a sweet calm stealing through the heart like a benediction. He looks up, and through the serene light the Angel of Hope descends smiling, with outstretched wings over all his prospects. There is an undaunted faith in some ultimate happy solution of every difficulty. There is a superb steadiness and clearness of intellect. All demands are met with alacrity and with the feeling that the sunshine within is shedding its influence without. It is here that I wish to enter a protest against the misuse of the term *morphinomania*. A patient in the condition above described can be considered in no sense a maniac. The term, if allowable at all, can only be applied with a modified meaning to those who, fascinated by the enchanting effects, voluntarily yield to the drug only at intervals, and then against every dictate of better judgment. Even here there is scarcely any true maniacal impulse, as such persons may be saved by exposure, or reprimand, or full information as to the danger. With the confirmed daily devotee the judgment is clear, the volition unimpaired, and may be and frequently is exercised to overcome the habit with a rigor unequalled in the ordinary demands of life. He simply yields to opium as he must to the daily demands of Nature. It is common to hear those ignorant of the internal conditions in these cases speak refreshingly of will-power. "All that is required is to exercise a little will-power for a few days." Let one of these philosophers close the mouth and nose and exercise a little will-power against the habit of respiration for but three minutes; or let him do like the Russian exile, and go on a hunger strike.

The terrible suffering produced by withdrawing opium

\* I have known surprising ignorance to be displayed by physicians as to the time required for a hypodermic to take effect in repeating the dose in ten or even three minutes. With morphine injected well into the subcutaneous tissue, it requires twenty-five minutes by the watch to obtain the full *sedative* effect. It is not advisable to repeat the dose inside of thirty-five minutes. The first stimulating effect is almost invariably to cause nausea and one or two momentary accessions of pain or spasm, as in colic or asthma.

† This idea is expressed in somewhat different words by De Quincey in the writing alluded to. It is difficult to express accurately a common experience without unconsciously plagiarizing to some extent.

\* *Confessions of an English Opium Eater.*

is no more an indication of mania than the convulsions of a man who is strangling. The symptoms of abstinence are often loosely construed as the deleterious effects of the drug itself. The idea is held out that as soon as the morphine is got out of the system recovery will be complete. On the contrary, as soon as elimination is complete, the storm of abstinence will be at its height.

As the months wear on, the nervous system becomes gradually obtunded to the more exquisite effects previously indicated. The patient now resorts to the drug to escape the plain physical distress which follows upon any attempt at abstinence. Such attempts are doubtless numerous with the average morphine-taker, for he, of all others, begins to recognize the direful condition into which he has descended. He now barely recovers his accustomed cheerfulness under the influence of a fresh dose. He has lost weight; the complexion is sallow; sleep is uneasy and disturbed by dreams of grandeur, which are at the same time always depressing. He wanders through gorgeous halls and palaces, but the air is heavy and oppressive; or wends his way by endless hours through magnificent Roman baths, but is stifled by the steam, till he wakes with a start, drenched with perspiration.

During the early months of the habit the dosage is apt to be rapidly increased in an effort to preserve the pleasurable state of mind at first depicted. As this charm is lost sight of and the toxic symptoms begin to appear, the patient often returns with more or less effort to a comparatively small daily allowance. With this reduction the health visibly improves, but any attempt to totally abandon the drug, and such attempts may be numerous, reveals at once the supreme difficulty of the undertaking. He dreads to appear ill without adequate cause, and some demand upon his energy at the wrong time always leads him to postpone the effort to some more convenient day. This waiting for an opportunity is like waiting for a convenient day on which to die.

There is perhaps no more trying spectacle encountered by the medical man than the suffering produced by the treatment of the morphine habit by ordinary methods. Men with severe injuries or even fatal wounds suffer some pain, weakness, and thirst, but gradually find some easy position and may lie quiet without complaint. The throes of childbirth at the severest stage are mitigated by moments of repose and recuperation; besides, all these conditions are matters for legitimate relief. With the opium sufferer the only treatment consists in cruelly withholding the sole means of effectual relief while the unremitting access of agony presents a picture harrowing in the extreme, and may proceed to collapse and stoppage of the heart's action. I have used the words effectual relief in the foregoing passage advisedly; for I will venture to say that nothing in common practice has heretofore been devised, either in the different methods of withdrawal, immediate, rapid, or gradual, or in the whole list of drugs used as substitutes, which serves perceptibly to lessen the suffering. While atropine may be of value in resuscitating a person with acute opium poisoning, there is nothing in reason or experience to prove that it is of the slightest value in the

treatment of the chronic habit. The disturbance of vision and the dryness of the throat simply add to the volume of discomfort. Strychnine I believe to ultimately aggravate the trouble. The revulsion from cocaine leaves the patient worse than before. Acetanilide and the coal-tar derivatives have only a slight and temporary effect, while the depressing influence on the heart's action is objectionable. Coffee is of undoubted value in the preliminary struggle of reducing morphine to a minimum, especially to alleviate the giddiness and depression on first rising in the morning. Here also light alcoholics may be of value at times, but brandy is apt to produce weakness of the will and an increased desire for morphine. Bromidia at night may help in reducing the allowance. At the height of the supreme struggle, which follows on the second and third day after total suspension, all these agents are of no perceptible value. The whole list of hypnotics produce drowsiness without allaying the intense distress and muscular spasms which harass and prevent sleep. The list of heart tonics may stimulate the pulse, but do not mitigate pain. The valerianate of ammonium, mentioned by De Quincey, I have not observed to be of any value. It is here that we may realize the immense gulf between opium and the rest of the pharmacopoeia.

It was while attempting to treat a patient long addicted to morphine by hypodermic injection that I noticed in a lay paper an incidental allusion to the cure of the morphine habit by the sulphate of codeine.\* Unfortunately, I have never been able to correspond satisfactorily with the author of this hint in regard to the matter. The standard literature on the therapeutic uses of codeine I have found to be scant and unsatisfactory, for it is generally reckoned to be identical in effect with morphine, but less powerful. During one of the numerous attempts to abandon morphine in the case above mentioned, when the suffering had become intolerable, I determined to try codeine as a substitute. A hypodermic injection of one grain of the sulphate dissolved in hot water was given, with the most satisfactory result. Aside from accounts of experiments on the lower animals, I think I am in a position to assert from my own experience with this drug that no amount of codeine is identical in effect with any amount of morphine. The effect in the case under consideration was little short of magical. In half an hour the severe pain in the lumbar region and down the sciatics had completely subsided, and the patient, after expressing an instinctive belief that the necessary stepping stone across the chasm had been found, arose from his couch and went about his vocations as usual. This relief continued for four hours. The difference in effect between morphine and codeine under these conditions becomes vividly apparent. An eighth of a grain of morphine will relieve the peculiar pain, but there is added a certain positive effect on the cerebrum, and the patient is aware that he has again

\* Since the events recorded in this article took place I have noticed a brief reference in the *Medical Annual* to a paper by Gitterman on the use of codeine as a substitute in treatment of the morphine habit (*Medizinische Zeitung*, p. 121). There are no details, and I have not been able to secure his original paper. These are the only two references to the subject I have seen.



taken morphine. After one grain of sulphate of codeine the pain simply fades away; the effect is much less profound, and the patient does not feel as if he had taken anything.

The codeine treatment was subsequently followed up systematically, one to two grains being given every three hours, according to the urgency of the symptoms. This course was continued during the first five or six days, then the intervals were gradually lengthened till on the fourteenth day it was dropped entirely without any great difficulty. I think the ultimate easy success of this treatment lay in the comparatively prolonged use of the codeine, allowing time for the substitution of one habit for the other. I should hardly expect any benefit from its use in any attempt at very rapid reduction. After having gradually reduced the morphine to a minimum, say one half or one quarter of a grain in twenty-four hours, the codeine may be substituted. During the period when the storm from total abstinence from morphine would be at its height the codeine must be used with corresponding freedom; ten or twelve grains in twenty-four hours were used in this case. On account of its comparative insolubility, it is best used by heating with the required amount of water in a spoon over a spirit lamp, and the solution should be injected immediately before it cools sufficiently to allow recrystallization. There is no danger of an overdose, as the barrel of an ordinary hypodermic syringe will hardly hold more than two grains in solution.

During a period of ten or fourteen days the patient is instinctively aware of a change going on in his constitution. There is a partial but permanent recovery of tone in the nervous system which gives confidence in the final result. In dropping the codeine on the fourteenth day the discomfort was at its height in twenty-four hours. In thirty-six hours the victory was practically won. There was some restlessness in the evening and fore part of the night, which was, however, comparatively bearable. Acetanilide and bromo-caffeine for a little occipital headache, quinine for a slight lumbar pain, and bromidia at night did good service. In this case morphine had been used hypodermically for nineteen months, as high as seven or eight grains a day being taken for a considerable time. In three weeks from the time the morphine was dropped the cure was practically complete, and that without the exercise of more than ordinary fortitude and without abandoning the daily duties. The one fact that the habit was voluntarily abandoned by this method where other attempts had signally failed speaks volumes in its favor. The patient has long since ceased the use of even milder hypnotics and continues to enjoy the most perfect health.

A word about relapses. There is nothing under heaven which will prevent a healthy man from relapsing into old habits or forming new ones equally bad if he is willing to do so. There seems to be an impression among medical men that any attempt to cure the morphine habit by an easy method is more apt to be followed by relapse than if the horrible and barbarous method of immediate suspension is adopted. The only difficulty is to break the habit by any means whatever. Observation has convinced me that the enslaved condition results from a change of nutrition, and consequent loss of tone of the cerebro-spinal system

from long dependence upon an artificial support. Many of the characteristic symptoms of deprivation are due evidently to a lack of the usual inhibitory influence of the cerebro-spinal system over the sympathetic (dilatation of the pupils, increased peristaltic action, etc.). Further, the early effects of morphine are to afford an artificial rest or support to the centers of sensation, causing the fictitious feeling of tonic and well-being. When this support is at last withdrawn, these centers of sensation are left in a state of abnormal irritability toward the multitude of bodily stimuli which normally give rise to the muscular sense, and a state of irritation and voluminous discomfort arises which constantly approaches collapse. From these considerations it is unreasonable to suppose that the old state of malnutrition from prolonged use of opium can be at once re-established, and the patient correspondingly enslaved, by a single dose of morphine months or years after the habit has been abandoned. If one who had once been a morphine-eater were suffering from the passage of a biliary calculus, I can see no reason why a hypodermic should not be allowed. The danger lies in chronic painful affections, or in original defects of the nervous system.

In the foregoing account the words opium-eater, morphine victim, etc., have been used indifferently. Owing to the comparatively large percentage of morphine in opium, as well as the predominating power of this alkaloid, the opium victim is practically a morphine-eater. In a communication on the subject kindly sent me by Messrs. Powers & Weightman, of Philadelphia, they state that no opium is admitted to this country containing less than nine per cent. of morphine. The percentage of codeine is said to vary, and they have kept no record of the various proportions in different kinds of opium.\* Contrary to the assertion made in the United States Dispensatory, they say that at present they export no codeine to France. The ordinary therapeutic uses of codeine seem to be confined chiefly to allaying the cough of phthisis and the treatment of diabetes. Besides, it is a favorite substitute with some physicians for morphine.

It is not to be understood that the author of this paper would impose the exact line of treatment laid down in the case related. It is to be remembered that while codeine does not altogether prevent the recovery from morphine, it probably retards it. But this little prolongation of the treatment is more than counterbalanced by the escape from suffering. Other cases might require a somewhat longer period of substitution before a cure could readily be effected. In one other case, where it was recommended for the morphine habit, it was used as a substitute for three months. The morphine was originally required in this case for persistent vomiting, followed by hepatitis with inflammatory symptoms lasting for eight months. The habit had been kept up for four years. The patient, having gone to the country, was accidentally deprived of the use of codeine, and continued without it for four days without any characteristic symptoms of privation. While he was returning home an attack of vomiting supervened, attributed by the patient

\* It is stated in *Potter's Materia Medica* to vary from three to five per cent.

to overexertion, irregular eating, and exposure to heat. Since that time morphine or codeine has been used moderately. I think the interval of four days mentioned above again speaks well for the treatment, as the fourth day is too late for severe symptoms of deprivation to begin.

When codeine is relinquished it is advisable the patient be relieved of ordinary duties for a few days, and avoid all sources of annoyance as far as practicable. But strict confinement and enforced inactivity should be avoided if possible. On the contrary, there are times when vigorous exercise will relieve restlessness, especially calisthenics before going to bed.

In conclusion, let me say that if any one subject to the morphine habit expects any golden specific to bear him back to health without some effort and some sacrifice he will be disappointed. It is hardly possible in the nature of things that the laws of conservation and compensation of the material world should have no counterpart in conditions governing the nutrition of nerves of sense.

The sole advantage of the treatment above given lies in the fact that the penalty may be paid in installments. This is not possible by any gradual reduction of morphine alone, as the supreme difficulty consists in renouncing the last traces. To those who may attempt for the first time a cure by this method, the inconvenience may seem greater than this account would lead one to suppose. Let them try any other method generally practiced. It is chiefly by comparison with other methods that its value becomes apparent, and in this respect it is difficult to speak of it in terms of moderation.

## THE COMPARATIVE CLINICAL VALUE OF SEVERAL TESTS FOR GLUCOSE IN THE URINE.

By FRANK DUDLEY BEANE, A. M., M. D.

The following conclusions are based in part upon the experiments and observations about to be detailed:

1. There is no reliable reagent for proving the presence in the urine of a smaller quantity of glucose than 0.025 per cent. (1 in 4,000 parts).

2. Therefore the contention that a smaller quantity occurs in the urine during physiological or pathological conditions can not be considered proved.

3. Normal human urine contains minute quantities of reducing substances. Whether or not a part thereof is glucose can not be determined by our present analytical means.\*

\* And despite Wedenski's (*Ztschr. f. phys. Chem.*, 1888, xiii, 112) use of Baumann's discovery, that benzoyl chloride forms insoluble compounds with the carbohydrates, which allowed him to separate from normal urine a body giving the grape-sugar reaction. V. Brücke, Seegen, Abels, and Salkowski also succeeded, by means of concentrating the urine and the use of the same reagent, in extracting such a minute quantity that v. Jaksch (*Clinical Diagnosis*, Lond., 1890, pp. 224 and 230) says: "It can not act as a disturbing factor even in the most sensitive tests to be described." The fact of benzoyl chloride forming compounds (as yet unknown) with the carbohydrates would render it incapable of proving the original presence of glucose in the urine.

4. The Oliver-Mulder indigo-carmin, the Johnson-Braun picric-acid, Franqui and Van de Vyvere's potassic-bismuth, and Brücke's bismuth-iodide tests are unreliable and misleading.

5. The ammonia-lead test is reliable for quantities at and above 0.20 per cent.

6. Einhorn's fermentation test (modified) is practically reliable for as little as 0.10 per cent. of glucose in the urine.

7. Worm-Müller's (modified Fehling's) and Salkowski's (modified Trommer's) tests are, under certain conditions, reliable for 0.05 per cent. and upward.

8. Nylander's bismuth solution in expert hands will detect 0.025 per cent.; in careful hands will prove trustworthy for 0.05 per cent. and upward.

9. The phenylhydrazin-hydrochlorate test, as modified by Ultzmann and Bond, yields reliable results for quantities as small as 0.025 per cent., and is the best single test known.

These experiments were undertaken to clear up the following—

INSURANCE CASE.—A professional man, aged thirty-seven years, American, spare, five feet nine and a half inches, weighing one hundred and twenty-two pounds (never exceeded one hundred and thirty-five pounds; past twelve years' winter weight, one hundred and twenty to one hundred and twenty-two; summer weight, one hundred and fourteen to one hundred and nineteen); nervous temperament. Parents living at age of seventy-two years. Sole hereditary predisposition, indigestion. Always enjoyed health till summer of 1883; then an attack of nervous prostration from worry and overwork, repeated in winter of 1885 from same causes. Care and rest, with a sojourn in the country during the two succeeding summers, brought fair health, permitting the steady performance of the duties of a busy life. Habits always excellent. Never used tobacco; alcoholic drinks never indulged in as a beverage. Applicant anæmic, partly due to indoor confinement. Physical examination showed the absence of organic disease. Digestion fair, but frequent indigestion attacks. General functions normal. Never any inordinate appetite or thirst; rather sparing of fluids, partly from habit, partly from "dyspepsia of liquids." Daily quantity of urine excreted, about 750 c. c. to 800 c. c. Rejection having followed the report of the medical examiner of one of the three large insurance companies of this city, in which (afterward learned) was stated "the presence of sugar in the urine," these experiments were conducted under the conditions of absolute cleanliness of utensils, purity of chemicals, accuracy of measuring and weighing, filtration to clearness of all urine tested, and such other details as shall appear. Time, December 14, 1888, to February 12, 1889.

A. *Summary of Applicant's Specimens.*—Twenty-one samples. Specific gravity at 60° F. from 1.020 to 1.032. Albumin free. Indigo-carmin, eleven reactions, five negatives; picric acid, potassic-bismuth, and Frohn's reagent, reaction in all specimens tested; ammonia-lead (7), Fehling's (9), Salkowski's (2), the Bond-Ultzmann (13), and Einhorn's (5), all negatives where employed; Nylander's, four reactions (specific gravity 1.031 and 1.032), seventeen negatives; Worm-Müller's, one reaction (specific gravity 1.032), fourteen negatives.

The applicant's diet was largely cereal and vegetable.

*Deductions.*—Fehling's, Nylander's, and Worm Müller's (controlled in the doubtful reactions by the charcoal-filtration or by Méhu's evaporation processes) tests speak negatively,

while Einhorn's and the Bond-Ultzmann conclusively prove the absence of glucose and the untrustworthiness of the other tests (excepting the ammonia-lead).

*Memoranda.*—One specimen reacted to the indigo, picric, and potassic-bismuth test after the charcoal process, although Worm-Müller's and the Bond-Ultzmann were negative throughout. Another specimen persisted to react to the indigo after Méhu's (1) evaporation process, although negative to Worm-Müller's test.

*NOTE.*—December 1, 1891. The applicant's urine has been and is free from all questionable reactions to Nylander's and Worm-Müller's tests, by reason of reform in diet, and his health has been and is good. In March, 1890, a policy was issued by the third prominent company with a full knowledge of the facts.

To further test the value of the indigo, picric, and Frohn's reagents, samples were obtained from five healthy young men, one healthy woman, three young men with indigestion, one female neurastheniac, one male octogenarian with chronic cystitis. The diet in all cases was mixed, with a leaning toward animal food.

*B. Summary of Miscellaneous Cases.*—Twenty-seven samples. Specific gravity at 60° F., 1.012 to 1.033. Indigo-carmin, nine reactions, six negatives; picric acid, eight reactions, one negative; Frohn's, ten reactions, two negatives; Worm-Müller's, ten doubtful reactions, ten negatives; and all negatives, where employed, to ammonia-lead (17), Salkowski's, Bond-Ultzmann's (10), Einhorn's (1).

The general result demonstrates the unreliability of the first three tests, the absence of glucose having been proved by the Bond-Ultzmann as well as by Worm-Müller's and Salkowski's following the charcoal filtration process, the latter having been employed in all samples giving the most marked reactions and the highest specific gravity.

*C. Diabetic Urines.*—Diluted diabetic urine next engaged attention.

Sample 1—pale yellow, acid, 1.039 at 60° F., faint trace of albumin by heat and nitric acid; glucose, by modified Einhorn's method, equals 7.5 per cent.

No. 2—pale yellow, acid, 1.036, slight trace of albumin by heat and nitric acid; glucose, by the Cole-Chandler (2) method, equals six per cent.

These specimens were diluted with normal urines; specific gravity at 60° F. of 1.010 and 1.016.

*General Result.*—Twenty-five specimens. Failure of indigo-carmin, Frohn's, Worm-Müller's, and Salkowski's to demonstrate 0.025 per cent., although the Bond-Ultzmann and picric acid gave unmistakable reactions.

All the other tests (save ammonia-lead), which began at 0.20 per cent., reacted to 0.05 per cent. and upward.

Finally, attention was directed to artificial glucosic urine. The glucose, chemically pure, manufactured by Trommsdorff, of Erfurt, Germany, was dissolved in normal urines; specific gravity at 60° F., 1.010 and 1.020, to the strength of one per cent., this latter further diluted with the same urines to the required percentage.

*D. Artificial Glucosic Urines.*—Thirty-five specimens. The general result was the same as with the preceding urines, except that Nylander's test (not used with the diabetic specimens) gave faint reactions to 0.025 per cent.

We may now profitably consider the tests in the order of their value.

*PHENYLHYDRAZIN OF BOND AND ULTZMANN (3).*—In 15 c. c. of urine, in an eight-inch test-tube, dissolve by agitation one gramme phenylhydrazin hydrochlorate and two grammes

sodic acetate, in coarse powder. Gently raise to boiling point, which maintain for half a minute, set aside for a quarter to twenty-four hours, according to amount of glucose suspected, and examine the sediment with  $\times 200$ , better  $\times 300$ . Minute quantities of glucose being suspected, I obtained more positive results within twenty-four hours by using 25 c. c. urine with the usual quantity of chemicals.

The "classical method" (Fischer's) was found to present no advantages, and is more troublesome.

The *phenylglucosazon* (glucose in combination) may be recognized as sheaves, sprays, or stars of delicate yellow needle-like crystals, precisely like those of tyrosin (occasionally leucin), excepting the color, the (two) latter always being white. As tyrosine and leucine very rarely appear in the urine (in acute liver atrophy or other equally pronounced and alarming diseases), the distinction is simple.

Various-sized reddish and yellowish globules, constantly present in profusion in the field, show the phenyl salt to be in excess.

*Remarks.*—Introduced by E. Fischer (4), afterward applied by P. Grocco (5) and R. von Jaksch (6) to pathological urine, this test, despite its comparatively recent discovery, is, as modified by the late Professor Ultzmann and Dr. Bond (3), considered the most sensitive and reliable known (6). Dr. Penzoldt (7), however, declares "there are other substances liable to occur in the urine which give the same reaction"—referring probably, though not stated, to potassium glycuronate crystals.

From numerous experiments Dr. Bond maintains that: (1) Normal urine does not respond to this test; (2) the latter will surely detect one fortieth (0.025) per cent. of diabetic sugar; (3) other substances, save albumin (which must first be removed if present in any amount), do not disturb its sensitiveness; (4) alkaline or acid, cloudy or clear, urine may be used; (5) if [typical] crystals are found, the proof of the presence of sugar is absolute; (6) it requires no special skill to prepare and examine the specimen.

My experiments fully confirm Dr. Bond's statements, provided typical crystals be the *sine qua non*.

Typical refers solely to needle-like yellow crystals, arranged as sheaves, half-sheaves, stars, or sprays, the essential feature being delicate needles.

Without heeding this caution, a novice might wrongly interpret the significance of numerous reddish-yellow, short acicular offshoots from the reddish phenylhydrazin globules forming stellar drops. These have no diagnostic significance.

They were only detected in samples referred to at A, the specific gravity of which was 1.027 and higher, and not prior to forty-eight and seventy-two hours after preparation. In three of these samples (specific gravity, 1.025, 1.030, 1.031), in addition to the stellar drops, were detected reddish-yellow and yellow broad, thick (a few long and more slender) crystals; some isolated, but the majority overlapping or superimposed, which, save for color, exactly resembled crystals of hippuric acid and neutral calcium phosphate.

In two samples, included in B, from a robust country lad in perfect health (specific gravity urine = 1.030 and



1.033), the crystals and stellar drops just described were also discovered after forty-eight and seventy-two hours.

None of these atypical crystals was discovered in specimens made from diabetic or artificial glucosic urines.

Regarding the reaction of phenylhydrazin muriate with cane sugar, in testing with a "granulated" sugar solution, I found the resulting crystals arranged more like straws in a whisk-broom, the handle being cut short off. There was no appearance of sheaves, save in immense clusters, even these looking like brooms (handles cut off) with their broad apices set in apposition. There were no sprays; simply single, slender crystals crossing each other. Therefore, with attention to details, a differentiation can be made.

Alone and uncontrolled, the Bond-Ultzmann test may be considered as the most reliable one known. Clinically it meets the most exacting demands, as the presence of 0.375 gramme in the daily total quantity of urine passed (viz., 1,500 c. c., the highest normal average) could possess little or no significance physiologically or pathologically (a sign of excessive ingestion of the carbohydrates and their imperfect appropriation).

While difficult to discriminate between the next two tests, with proper precautions, one being as sensitive and reliable as the other, on account of keeping qualities and ease of manipulation, we will first refer to—

NYLANDER'S SOLUTION (8).—Basic bismuth nitrate,\* 2 grammes; sodic potassic tartrate, 4 grammes; sodic hydrate (purified sticks), 8 grammes; distilled water, 100 c. c. Rub the solids to a coarse powder, add a little water to form a paste, then, stirring briskly meanwhile, gradually add the balance of the water. Let stand for five minutes to complete the solution. Filtration gives a perfectly clear solution. Add 1 c. c. of this to 10 c. c. of urine, boil for two minutes in an eight-inch test tube. If a light-gray to black precipitate form, it may be, usually is, due to the presence of glucose. If albumin is present, it must first be removed (heat and a drop or two of hydric acetate, and filtration). This formula is also found in the books as Almén's solution.

*Remarks.*—An expert, by careful comparison with a non-glucosic urine of like specific gravity, can detect 0.025 per cent. of glucose, the reaction, of course, being faint. But a urine containing 0.05 per cent. shows a plainly recognizable grayish tint in the flocculent precipitate.

Professor Penzoldt (7) supports the originator's claim that in normal urine it gives negative results in the larger proportion of cases.

In samples from a large number of persons—the specific gravity ranging from 1.027 to 1.034, the color yellow to brownish-red (Vogel)—the writer has obtained negative results with Nylander's solution, whereas Worm-Müller's and Salkowski's reagents gave a discernible cupric-hydrate precipitate. The charcoal-filtration process was followed by negative results.

While Nylander's is without doubt the best qualitative "reduction" test yet known, its originator and others admit a reaction with what should be considered normal

urine. This has occurred to the writer in samples, very numerous, of high specific gravity, from business men (sustaining constant and burdensome mental strain), which were proved to be free from glucose by the charcoal-filtration process and the Bond-Ultzmann test. V. Jaksch (6) says it will react to "melanin, melanogen," and many other reducing substances (page 228).

Since the experiments herein detailed were made, more than two years' daily experience, including some insurance cases and hundreds of others, in all varieties of conditions, has confirmed the estimate above formed of Nylander's test (with and without the charcoal control).

And here would seem to be the proper place to speak of—

THE CHARCOAL-FILTRATION PROCESS.—Seegen (9) years ago pointed out the value of filtration through chemically pure animal (blood) charcoal as a means of eliminating some of the reducing substances other than glucose, notably uric acid, creatin, creatinin, and urinary coloring matter. While the charcoal retains a minute quantity of glucose, this can be, nearly if not wholly, recovered by stirring the filter and charcoal with a small quantity of distilled water in an evaporating dish, bringing the whole to near the boiling point, throwing the whole upon a filter (or simply passing 25 or 30 c. c. warm distilled water through the charcoal), and testing the filtrate. To demonstrate the delicacy of this process with specimens containing 0.05 per cent. of glucose, I obtained unmistakable evidences of its presence in the filter-charcoal filtrate (i. e., filtrate No. 2).

With this method as a control in conjunction with Nylander's or Worm-Müller's test, repeated experience has convinced me that there is but little to be desired. By its use 0.05-per-cent. urines show an unmistakable light-gray reaction. Clinical needs, therefore, would seem to be fully satisfied.

The purity of the charcoal (Eimer and Amend's C. P. from blood) was tested thus: Mixed with distilled water, boiled and filtered, the filtrate tested by Nylander's, Worm-Müller's, and Salkowski's reagents with negative results (not the slightest change in colors).

A word upon Böttger's test is demanded. It is erroneously described by a deservedly popular work (10) upon urinalysis as "adding an equal volume of liquor potasse or sodæ, then a pinch of ordinary subnitrate of bismuth, and boiling for a couple of minutes." First, this is not Böttger's, but Franqui and Van de Vyvere's test (11); second, it gives a misleading reaction with urines of high color and specific gravity, although absolutely free from glucose. Salkowski and Penzoldt warn against this error; my experiments emphasize it (see A and B). Dr. Tyson is not as well pleased with it as formerly.

BÖTTGER'S TEST (12).—Mix equal volumes of urine and a solution of sodic carbonate (crystals, 1; distilled water, 3 parts); add a few grains of bismuth subnitrate and boil for two minutes.

The tablets offered by Messrs. Parke, Davis, & Co., in their "bedside urinary-test case," are a very convenient form for making use of Böttger's test, and their case is for bedside testing indispensable to the careful practitioner.

\* V. Jaksch (*loc. cit.*) says "basic pernitrate."

Almost coequal in value are Worm-Müller's modification of Fehling's and Salkowski's modification of Trommer's test. The former possesses slightly the greater delicacy, and is the easier of manipulation.

**WORM-MÜLLER'S TEST (13).**—*Solution No. 1:* Cupric sulphate, 2.50 grammes; distilled water, 100 c. c. Mix and filter. *Solution No. 2:* Potassic-sodic tartrate, 10 grammes; sodic hydrate, 4 grammes; distilled water, to 100 c. c. Mix and filter.

Five cubic centimetres of urine (clear and free from albumin\*) in a six-inch test-tube, and a mixture of 2.50 c. c. of solution No. 2 and 1.50 c. c. to 3 c. c. of solution No. 1 (specific gravity less than 1.020, use 1.50 c. c.; from 1.020 to 1.025, use 2 c. c.; to 1.030, use 2.50 c. c.; beyond which use 3 c. c. of No. 1) in a similar tube. Boil the contents of both tubes, suspending the boiling simultaneously in each, wait twenty to twenty-five seconds, then pour the urine into the tube containing the reagent.

When the amount of glucose is very slight (0.05 per cent.), wait five to ten minutes to allow the phosphates to subside, when the supernatant liquid will be seen to be turbid from a very fine yellowish-green or light yellowish-reddish-green suspended substance, which is cuprous hydrate. Even in dealing with as delicate a test as this the operator can readily recognize the reaction by comparison with a sample of normal urine, of a similar specific gravity, treated by this method. When the urine contains a larger percentage (0.10 and upward), the usual reddish-yellow or yellowish-red precipitate is at once formed, cuprous hydroxide or oxide.

**Remarks.**—This is the best modification of Fehling's test which has come to the writer's notice, being the least liable to error from other reducing substances than glucose. But this source of error occasionally occurs, as a recent insurance case demonstrated. The urine was 1.030, superacid, with uric-acid deposit,  $\frac{1}{5000}$  albumin (due to pus), gave a 0.05-per-cent. reaction to Worm-Müller's, but was negated by Nylander's and the charcoal-filtration process. The applicant was without the slightest symptom or sign of physical derangement. Probably pyrocatechin was the disturbing substance.

**SALKOWSKI'S TEST (14).**—*Solution 1:* Dissolve 100 grammes of sodic hydrate (purified, in sticks) in 300 c. c. of distilled water; if there is any sediment, carefully decant the solution.

*Solution 2:* Cupric sulphate, chemically pure, 10 grammes in distilled water 100 c. c. To 9 c. c. urine add 3 c. c. of solution 1 in an eight-inch test-tube, then the solution 2, drop by drop, shaking the mixture after each, until the copper ceases to dissolve. Slowly heat to a little below the boiling point (be especially careful as to this), and if glucose be present the usual greenish, or yellow, or

reddish hydroxide of copper will be seen, first in the upper stratum, then throughout the liquid. Here, as directed under Worm-Müller's test, where only a minute quantity of glucose is present, the test-tube should be set aside for five to ten minutes to allow the subsidence of the flocculent phosphates.

Two minutes' maintenance near (but avoiding the actual) boiling point will suffice in all cases.

**Remarks.**—This, while a little more troublesome and less uniform than the preceding test, will in experienced, careful hands, demonstrate 0.05 per cent. of glucose. It is open to the same sources of errors as all "reduction" tests.

It may be profitable to here consider the

**REDUCTION SUBSTANCES.**—They may be divided into—

**Group I. Normal Urine Constituents or Eliminates.**—Uric acids and urates, creatin, creatinin, indican, other coloring matters, inosit, lactose (galactose), levulose, "alkapton," alkapton-like bodies, Leo's unnamed substances (15), melanin, melanogen, pyrocatechin, proto-catechuic, uroleucic, uroanthic, and glycosuric acids, and others.

**Group II. Medicinal Agents.**—Antipyrine, benzol, bromobenzol and nitrobenzol, benzoic acid, camphor, chloral, chloroform, copaiba, cubeb, exalgine, glycerin, hydroquinol, morphine, orthonitrotoluol, phenacetin, phenol, salicylic acid and salicylates, sandal oil, the turpentine, as well as others which are creeping into notice.

Even the phenylglucoson crystals may be simulated by potassium glycuronate in urine which has been treated by phenylhydrazin hydrochlorate.

It is well to remember that maple sugar (Christopher [16], confirmed by the writer in a sample of Vermont sugar from the maker and unquestionably unadulterated), the refined sugars, molasses, and syrups contain a large percentage of glucose. If ingested in large quantity, a small part may be eliminated in the urine even during health. Rhubarb taken as food will also cause a reaction from the bismuth tests (Salkowski) (14).

To review the detailed reactions of the above-named substances in the urine would exceed the scope of this article. An excellent reference to several will be found in an article by Dr. T. Barton Brune (15).

Aside from levulose (heretofore only detected in combination with glucose, consequently to be disregarded) and galactose (only found in the urine of nursing women), the disturbances due to substances of Group I may be eliminated by careful and successive testing with Nylander's (before and after the charcoal-filtration process), the fermentation, and the Bond-Ultzmann tests.

Questioning the patient and a new sample (after the proper interval) will remedy an error due to the presence of those of Group II.

THE FERMENTATION TEST comes next as far as delicacy is concerned, and, barring (theoretically) levulose, is second to none for reliability.

With Einhorn's apparatus (17), washed fresh yeast, properly diluted acid urine, and a temperature of 65° F. to 80° F., the detection of as little as 0.10 per cent. of glucose is certain, despite much that has been written by way of theoretical criticism. Even a very recent critic-

\* The removal of even as minute a quantity of albumin as  $\frac{1}{5000}$  (Tanret's, or picric acid, or nitric-magnesian [Roberts's] contact method, with or without heat) is essential, as one case demonstrated, Salkowski's test having produced a dirty reddish-gray precipitate, with a few spots of yellow cupric oxide interspersed. While the presence of  $\frac{1}{5000}$  albumin has not interfered with Nylander's and Böttger's tests, the rule to remove all albumin should always be followed.

after a considerable experience, acknowledges (18) it to be practically correct for quantities under one per cent.

The following method, after considerable experimenting with others, gives the best results:

*Method.*—After a preliminary testing (perfectly clear and albumin-free urine) with Nylander's or Worm-Müller's solution, observe Einhorn's rules for dilution in accordance with specific gravity or a rough estimate of the amount of glucose present. If alkaline, render the urine (diluted or not) faintly acid with a five-per-cent. solution of tartaric acid; boil so as to remove contained air, and cool. With a glass rod gently stir 10 c. c. of this with a pea-sized mass of fresh compressed yeast, half a cake of which has been mixed with 25 or 30 c. c. of distilled water and filtered. Fill Einhorn's apparatus (No. 1) and set aside in a warm place (near a register, stove, coil, warm wall, or closet) with a thermometer for guidance for sixteen to twenty-four hours, the temperature ranging from 65° F. to 80° F. Fill another tube (No. 2) with distilled water or normal urine of low specific gravity + a trifle of glucose + some of the same yeast, and set aside with the former as a control test for the activity of the yeast, evidenced by the formation of gas within this second Einhorn tube.

Gas formed in tube No. 1 is proof of the presence of glucose in the following amounts:

A minute or medium-sized bubble = 0.10 per cent.

0.2 c. c. = 0.20 " "

0.4 " = 0.25 " "

1.8 c. c. to 2.2 " = 0.50 " "

3.0 " " 3.5 " = 0.75 " "

4.5 " " 5.0 " = 1.00 " "

Errors from impurities of yeast and aerated alkaline urine are hereby eliminated.

*Remarks.*—The simplicity and convenience of this method far exceed those of Fehling's titration and its modifications; its accuracy is fully equal to the latter, with its necessary correction-calculations, as over two years' personal experience and comparisons have demonstrated. Certain it is that Einhorn's method, as here outlined, serves all clinical and practical purposes.

The writer has not tested Roberts's (19) fermentation method, but its simplicity and clinical accuracy (when one possesses properly made urinometers) would seem to be beyond question. An excellent paper upon the subject has lately appeared (20).

**THE AMMONIA-LEAD TEST.**—This has been referred to in some works as Dr. Penzoldt's, but the latter says (7) his knowledge came from Dr. Dittmer, who saw it in Lüdke's pharmacy in Berlin. The author could not be ascertained. Nevertheless, Hager's *Pharm. Praxis*, ii, 855, refers to it.

*Method.*—To 10 c. c. of urine in an eight-inch test-tube add ten drops of ammonium hydrate, shake, then two to three drops of liquor plumbi subacetatis, which will form a white curdy precipitate. Cautiously heat to near the boiling point for two minutes without producing bubbles or "bumping," accomplished by care and practice. The presence of glucose is indicated by a faint pinkish-yellow to a brownish-red or purple tint to the precipitate. To be characteristic the pink tint must appear.

*Remarks.*—My experience corroborates Dr. Penzoldt's, that this reaction does not occur in urines free from glucose even when concentrated and possessing a specific gravity of 1.033. Its sensitiveness does not exceed the detection of 0.20 per cent. of glucose; 0.10 per cent. gave thoroughly doubtful reactions (yellowish). While reliable and comparatively easy of execution, Nylander's, Worm-Müller's, and Einhorn's are more searching.

Now we may deal with those tests which our experiments have demonstrated to be inaccurate and misleading despite their popularity. These conclusions are supported by Penzoldt (7) and v. Jaksch (6).

The special source of error lies in the fact that with normal urine when added in certain quantity the characteristic reactions occur, so that the proof of the presence of glucose simply depends upon the degree of color in relation to the quantity of urine tested.

**THE INDIGO-CARMIN-SODA TEST (21).**—In thirty minims of distilled water dissolve one indigo-sodic tablet in a test-tube by gentle heat. (If the urine is very acid, also add a sodic-carbonate tablet.\*) To this blue solution add, from a pipette, one drop of urine; keep the fluid near 212° F., without active ebullition, for one minute. If no change, add another drop of urine and heat again. If glucose is present, the fluid changes successively to violet, purple, red, or yellow in proportion to the amount contained.

**N. B.**—Normal urine produces a reaction (purple or red) when five to eight drops are added. But one drop producing a change in color is proof that sugar is present in abnormal quantity. "Its indications may be accepted as infallible."

Agitation of the tube during heating retards, vigorous shaking actually prevents the reaction, even when a large percentage is present (being due to contact with the oxygen of the air).

Oliver (22) maintains that this test is not affected by any of the normal urinary constituents, albumin, blood, bile, leucin, mucus, peptone, pus, tyrosine, ammoniacal or decomposing albuminous urine, or even a weak solution of ammonium sulphide; but that dextrin, inosite, glucose, lactose, ferrous and ferric sulphate, gallic and tannic acid do cause the reaction. He has also adapted it to quantitative analysis. He recommends test-papers, but the tablets of Messrs. Parke, Davis, & Co. are equally reliable, the writer having tested both, as well as the pure chemical (in solution), with uniform results.

*Remarks.*—A reference to A and B recalls that in thirty-one samples of normal urine where used, this test reacted in twenty, ranging from violet to yellow and proportionate to the height of the specific gravity.

Upon what these reactions in concentrated urine depend has not been determined.

Since five to eight drops of normal urine of medium specific gravity react, some experimenters (23) claim that normal urine consequently contains a minute trace of glucose; others (24), equally eminent, deny this.

\* Unless the urine is rendered decidedly alkaline with sodic carbonate an erroneous negative result may occur.



Our results, C and D, would seem to support the latter, since 0.025 per cent. of diabetic as well as artificial glucosic urines failed to affect the reagent, whether in paper, tablet, or pure chemical.

Reacting in two thirds of the specimens of glucose-free urines and failing to show the presence of 0.025 per cent. of glucose, the conclusion is irresistible that it is "unreliable," and, since so largely accepted as infallible, "misleading." It has a "negative" value, since non-reacting urine may be accepted as practically free from glucose (accepting 0.05 per cent. as the lowest pathological unit). In this sense it may be useful as a preliminary test.

THE PICRIC-ACID TEST is also very popular, and was favorably referred to in life-insurance examiners' hand-books until recently.

*Method* (10).—To 5 c. c. of urine add 3 c. c. of a saturated solution of picric acid and 2 c. c. of potassic hydrate (specific gravity, 1.065). Boil for a minute. If glucose be present, a dark mahogany-red color will result.

N. B.—The light cherry-red hue of normal urine treated the same way is somewhat deepened, Dr. Johnson estimating the change as equal to that occurring in a solution of 0.5 to 0.7 grain to the fluidounce (equal, in round numbers, to  $\frac{1}{1000}$  to  $\frac{7}{1000}$ ) of glucose. This the writer confirmed in normal urine of 1.020 specific gravity. Dr. Johnson claims that uric acid, the urates, and albumin exercise no disturbing influence, but that an excess of creatin does (25).

*Remarks.*—Dr. Penzoldt's criticism (7) is wholly *apropos*. "... The judgment of the observer, at best, has to be based upon the depth of tint. Consequently the test lacks sharpness. . . . It can not be recommended" for amounts less than 0.20 to 0.25 per cent., as even Dr. Johnson's figures and these experiments demonstrate. But all the specimens (in which used) in A and B, save one with a specific gravity of 1.012, showed a reaction (in all a decidedly deeper tint than occurs in normal urine). In C and D there were no failures. In dealing with 0.05 and 0.025 per cent. there might have been a difference of opinion between two operators, as the tint being deeper than results from a 0.1-per-cent. solution of glucose—*i. e.*, Dr. Johnson's "normal."

FROHN'S REAGENT.—To remove the elements which in certain cases disturb the accuracy of Böttger's test, Professor Brücke (26) recommended the use of Frohn's reagent, which is made as follows: "A gramme and a half of freshly precipitated basic bismuth nitrate is mixed with twenty grammes of water and heated to boiling; then seven grammes of iodide of potassium and twenty drops of hydrochloric acid are added. The reagent is orange-red" (10).

*Method.*—With equal quantities of water and urine, respectively in two test-tubes, add hydric chloride to the former until a drop of Frohn's reagent fails to produce cloudiness. Then add this (just determined) quantity of acid to the urine, adding two or three drops of the reagent, and filter. Boil the filtrate, no longer cloudy on adding hydric chloride or the reagent, a minute or two with an excess of a ten-per-cent. solution of sodic or potassic hydrate. "If a gray or black color results, or such a precipitate is formed, the presence of sugar is proved beyond a doubt" (10).

*Remarks.*—In every sample in which it was used (save

two, specific gravity 1.013) in experiments A and B it gave decided reactions; the higher the specific gravity the deeper the precipitate (from light-gray to black). While capable of reacting to 0.05 per cent. diabetic and 0.025 per cent. artificial glucosic urine (see C and D), the former experiments demonstrate that in highly acid urines of high specific gravity it fails to support the claims of its adapter. Its unreliability was further emphasized by its reaction in one sample (1.028) after the charcoal process (a light-gray precipitate), and in another (1.027) after Méhu's evaporation process (grayish-black precipitate). While as sensitive as any, it is not so convenient as Nylander's or Worm-Müller's.

No attempt was made to ascertain the value of the color tests of Molisch (alpha-naphthol and thymol) and of Agostini (auric chloride), as they both react upon the same principle as indigo-carmin and picric acid—*i. e.*, to a certain proportion of normal urine.

The practical deductions for the physician, if not the chemist, from the present survey of the subject, would seem to be:

1. For qualitative testing, Nylander's and Worm-Müller's methods are worthy of confidence and should be the first resort.
2. Doubt arising, the charcoal or Bond-Ultzmann method is competent to decide the question.
3. For quantitative analysis the fermentation method, as detailed, gives results sufficiently accurate for the most exacting clinical demands.

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*Process.*—Evaporate the urine [100 c. c.] to a syrupy consistence [5 c. c.] over a water-bath; cool; add ninety per cent. of alcohol [10 c. c.]; stir thoroughly; filter and evaporate the alcohol. The residue, redissolved in distilled water [10 c. c.], may be tested. The creatinin—a great inconvenience—may be removed by adding to the alcoholic liquid a little zinc chloride, setting aside twenty-four hours before filtering and making the test. Méhu also advises, in doubtful cases, another method—*viz.*, to the urine add one twentieth of its volume of the solution of basic lead acetate of the shops; filter; add powdered anhydrous neutral sodic carbonate; and, after agitation and separation of the lead precipitate, concentrate the colorless liquid to one tenth of its volume; filter and test the filtrate with Worm-Müller's or Nylander's reagent. [Both methods were tested.]

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*Process.*—Put 10 c. c. of solution of cupric sulphate, chemically pure (17.319 grammes in 500 c. c. of distilled water), into a 300 c. c. Florence flask; add 40 c. c. of distilled (or boiled) water; then about two thirds of a gramme of acid tartaric, chemically pure; make solution; add sufficient ten-per-cent. solution of potassic hydrate until a permanent deep-blue color is obtained. Place flask on retort stand and boil. If any change (save intensified blue) occur, the chemicals are at fault, and the process must be repeated with *freshly-made* solutions. Dilute 10 c. c. of urine with 90 c. c. of distilled water. While the test-solution is boiling, add, drop by drop, the diluted urine from a burette. When nearing the end of the operation, interrupt the

boiling for a few moments, so as to better judge, from subsidence of the copper precipitate, when the point of saturation has occurred, as evidenced by the total discharge of the blue color of the supernatant liquid. The cubic centimetres of urine used : grammes glucose found :: 100 : per cent. of glucose, is the formula for quantitative computation. This is certainly an improvement upon Febling's method.

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27 WEST ELEVENTH STREET.

## THE RADICAL CURE OF HERNIA BY HYPODERMIC INJECTION.

By WILLIAM C. KLOMAN, M.D.,  
BALTIMORE.

For a number of years past various remedies—such as the fluid extract of white-oak bark, tincture of iodine, etc.—have been used in attempting the permanent occlusion of hernial rings and canals, but they have all proved to be of temporary value and have failed in their purpose.

In the month of May of the present year I investigated a new treatment for this purpose—the discovery of Dr. Charles E. McCandliss, of Atlanta, Ga. I was very incredulous at first in regard to its utility, but the doctor, in conversation, made such positive statements, spoke so rationally, and laid before me proofs of cures which had lasted for two years, that I felt inclined to give him the opportunity of showing what his treatment could accomplish, and furnished him with two cases—one a double inguinal hernia. On the left side the ring measured about two inches; the hernia was oblique, and would pass into the scrotum when unprotected; on the right side the hernia was direct, of smaller size, and constituted a bubonocoele. This man was an old soldier, a volunteer in the late war, and had been ruptured for thirty years. The other case was an oblique inguinal hernia of about five years' duration and of moderate size.

Both of these cases were cured by the 1st of July, and the last-mentioned case had then been doing without his truss for over two weeks, working daily (which he also did during his treatment), and on the day of my investigation he assured me he had lifted a weight of three hundred pounds without perceiving any protrusion of hernia or feeling any weakness.

Since then I have seen at least ten other cases treated and without a single failure. Some of these cases had worn a variety of trusses, none of which had been able to retain the hernia.

Several gentlemen, prominent citizens of Baltimore, have been treated successfully, one of whom has especially stated to me that he had bought a dozen kinds of truss, none of which had protected him, but that the hernia would protrude, especially when he was at stool. He had also been treated before by some hypodermic method and unsuccessful.

fully. He now goes without a truss or any support, and considers himself radically cured.

The injections are made into the edges of the hernial ring, and each one causes a growth of new tissue, which can be distinctly felt with the finger placed over it. These injections are made at intervals of three or four days until the hernial ring is fully sealed. The ring has then the feel of a patch of firmer, more solid substance than the surroundings. The pain caused by these injections is inconsiderable—no more than an ordinary hypodermic injection into the arm, except when made into the firmer tissue of Poupart's ligament; here sometimes complaint is made of soreness, but I have never seen any inflammation produced. The patient loses no time while under treatment. It is, of course, absolutely essential that a truss be worn while under treatment which must be able to retain the hernial protrusion.

These treatments are now given at the Baltimore Hernia Institute. Male and female patients are treated, the latter at their homes.

Altogether about thirty cases have been and are being treated, and so far no case has been unsuccessful.

I have recently seen a young man, who has been cured at the institute, who had strangulation of his hernia a few days before undergoing treatment. He has never had any pain or untoward symptom.

This method will commend itself to both physicians and patients, since the advantages over operative procedures are so obvious.

November 1, 1892.

**The Third Congress of American Physicians and Surgeons.**—The first meeting of the executive committee was held on December 27, 1892, in Philadelphia. The committee was organized by the election of Dr. William Pepper, of Philadelphia, as chairman and Dr. Newton M. Shaffer, of New York, as secretary. The following officers of the congress were elected: Dr. Alfred L. Loomis, of New York, president; Dr. William H. Carnalt, of New Haven, secretary; Dr. John S. Billings, of the army, treasurer; and Dr. Samuel C. Busey, of Washington, chairman of the committee of arrangements. It was decided to hold the next meeting in Washington in May, 1894.

**The Death of Dr. W. Chew Van Bibber, of Baltimore,** took place on December 14th, in the sixty-ninth year of his age. His literary work was considerable, and he was for several years one of the editors of the *Maryland and Virginia Medical Journal*. He was a lover of his profession, valued as a consultant, and with a temperament full of sunshine, sympathy, and helpfulness to the poor. He was in active practice up to the day of his death, which occurred quite suddenly in his office.

**The Death of Dr. Fitch E. Oliver, of Boston,** which occurred early in December, removed one of the former editors of the *Boston Medical and Surgical Journal*. His term of service in that capacity ended in 1864. In 1848, he, with Dr. Morland, translated Chomel's lectures on pathology. He was for ten years a member of the visiting staff of the City Hospital. His age was ninety-one years.

**The Death of Dr. Robert Crawford, of Cooperstown, Pennsylvania,** who for fifty years had been one of the leading physicians of northwestern Pennsylvania, took place on Christmas morning. Dr. Crawford was especially well known to the older members of his profession, and was highly esteemed for his social qualities as well as for his ability.

**Change of Address.**—Dr. Leopold Stieglitz, to No. 133 East Sixty-first Street.

## THE NEW YORK MEDICAL JOURNAL, A Weekly Review of Medicine.

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### ANOTHER QUARANTINE BILL.

REFERENCE was made in the *Journal* for December 10th to a proposed national quarantine bill that had been introduced into the House of Representatives by Mr. Payne, and the desirability of the measures provided for by that bill was questioned.

We have recently received a copy of a bill that has been introduced into the Senate by Mr. Harris and been reported by the Committee on Epidemic Diseases. It is entitled A Bill Granting Additional Quarantine Powers and Imposing Additional Duties upon the Marine-Hospital Service. It provides that no vessel from any foreign port shall enter any United States port, except in accordance with the provisions of the act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with the act, a penalty being imposed if the act is violated. All vessels clearing from a foreign port for a United States port must have a sanitary certificate regarding the cargo, passengers, and crew; and the President is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of making the necessary inspection. The Marine-Hospital Service shall co-operate with and aid State and municipal boards of health; and where there are no quarantine regulations or where local quarantine regulations are deemed insufficient to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State from another, regulations made by the Marine-Hospital Service shall be enforced. Consular officers shall make weekly reports to that service of the sanitary condition of their stations, and they shall enforce such rules and regulations as may be furnished them. On the arrival of an infected vessel at a port not provided with proper facilities for disinfection, the Marine-Hospital Service may remand it to the nearest national quarantine station. It is provided that the President may suspend immigration from countries in which cholera or yellow fever exists, and the act of 1879 establishing the National Board of Health is repealed.

There is no man in either branch of Congress more familiar with the history of national legislation in sanitary matters than Senator Harris; and presumably he considers that this is as comprehensive a bill as can be passed at this time. In fact, it virtually allows matters to remain *in statu quo*. As long as States and municipalities have the right to exact quarantine fees, so long will they maintain quarantine establishments. We have already given some of the reasons for the creation of



a national quarantine, and the advantage of having medical officers stationed at consular offices is but a feature of the system that should be enacted.

#### METHODS OF ADMINISTERING TAR.

DR. WILLIAM MURRELL, of the Westminster Hospital, London, commends the use of tar in winter cough and not a few other complaints. As he remarks in the *Medical Press and Circular* for November 30, 1892, the remedy has an ancient history and would be used much more freely if it were not for the many difficulties in the way of its administration. He states that he has recently had his attention called to tablets of tar containing a grain each, and these appear to him to be the best form in which to administer the drug. These tablets contain the whole of the constituents, they are palatable, and they disintegrate quickly. The usual plan has been to swallow three or four of these tablets every four hours, but this is not so good as to suck one frequently—in fact, every time the spasms of coughing recur.

Dr. Murrell refers briefly to the "tar-water" treatise of Bishop Berkeley, called *Siris*, a book that ran through several editions and was translated into almost every European language. The bishop thought he had found a cure-all in tar-water, some of the popular uses of which he had picked up during his residence in Rhode Island. Some great personages subscribed their concurrence in the allegations, or part of them, of the distinguished philosopher, but the tar-water had a short life. In 1875, however, Dr. Murrell brought up the subject again by recording a number of cases of winter cough and bronchial catarrh in the treatment of which tar had been an important substance, and since that time papers and reports of cases by the score "have appeared in almost every medical journal all over the world."

Concerning a certain patented preparation used in this country, Dr. Murrell writes that it has not been wanting in efficiency; it is simply a solution of tar in old Jamaica rum. It is more palatable than some of the other tar mixtures, but winter cough is a very persistent trouble, and "if a wineglassful of this concoction were taken every time the patient coughed he would stand a very good chance of never seeing the summer again."

Regarding the use of tar in capsules or *perles*, Dr. Murrell has not had much experience. He notes that the European profession has made an increasing employment of the *dragées de Christianie au goudron de Norvège*, but remarks that they are expensive and not adapted to the tastes of his own countrymen. For them, therefore, he welcomes the introduction of the palatable and soluble tablets of tar.

#### MINOR PARAGRAPHS.

##### STATE CARE OF THE INSANE.

IN Governor Flower's message to the Legislature he speaks of the State care of the insane in a knowing and approving

manner, referring to that policy as "a most praiseworthy philanthropy." He truly says that "corruption, extravagance, and the improper injection of politics into hospital management will be constant foes, which, if not combated and overcome, will bring reproach upon the State and prevent the accomplishment of much good." He recommends that all money paid out for expenses should be paid on the controller's warrant, believing that this will act as a check on any extravagance of asylum officials.

#### THE CLYSTER IN AFRICA.

IN the course of a recent exhibition of photographs taken in Africa, as *Progress médical* recounts, M. Marcel Monnier showed an African method of administering enemata. The implement employed is made of a gourd with two reeds stuck into it on opposite sides. The sick person reclines on an assistant's knees in the attitude of a swimmer. One of the reeds is inserted into the rectum, and the operator, taking the other one into his mouth, blows forcibly through it, thus driving the enema out of the gourd and into the patient.

#### TYPHUS FEVER IN NEW YORK.

WHILE the present outbreak of typhus in New York can not yet be called alarming, the appearance of cases in widely separated parts of the town within the last few days seems to call for the utmost strengthening of the sanitary authorities' hands and for all the vigilance that those officers are capable of. We hope to be able to record next week that at least no considerable further spread of the disease has taken place.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 1, 1893:

DISEASES.	Week ending Dec. 27.		Week ending Jan. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus .....	0	1	63	1
Typhoid fever.....	20	7	16	12
Scarlet fever.....	118	8	112	6
Cerebro-spinal meningitis....	1	1	1	2
Measles.....	102	3	86	10
Diphtheria.....	87	17	132	63
Small-pox.....	5	0	2	1

**The New York Orthopedic Hospital.**—We would remind our readers that the annual series of lectures will be given this year on Monday and Thursday afternoons from January 12th to February 20th, inclusive.

**The Celtic Medical Club, of New York.**—Dr. Constantine J. Macguire has been elected president; Dr. Joseph Gray, vice-president; and Dr. Joseph Merrigan, secretary.

**The Death of Dr. Beriah A. Watson, of Jersey City,** is announced to have taken place on Thursday, the 22d ult., in the fifty-sixth year of his age. Dr. Watson was a graduate of the Medical Department of the University of the City of New York, of the class of 1861, and one of the surgeons to St. Francis Hospital.

#### Society Meetings for the Coming Week:

MONDAY, January 9th: New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society (private);



New York Ophthalmological Society (private); New York Medical Historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement (annual); Gynaecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

**TUESDAY, January 12th:** New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Chautauqua (semi-annual), Chenango (annual), Clinton (annual—Plattsburgh), Erie (annual—Buffalo), Genesee (semi-annual—Batavia), Greene (quarterly), Jefferson (annual—Watertown), Livingston (semi-annual), Madison (semi-annual), Oneida (semi-annual—Rome), Onondaga (semi-annual—Syracuse), Ontario (quarterly), Oswego (semi-annual—Oswego), St. Lawrence (annual), Schenectady (annual—Schenectady), Schuyler (annual), Steuben (semi-annual), Tioga (annual—Owego), Wayne (semi-annual), and Yates (semi-annual), N. Y.; Norfolk, Mass., District Medical Society (Hyde Park); Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynaecological and Obstetrical Society; Northwestern Medical Society of Philadelphia.

**WEDNESDAY, January 13th:** New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany and Dutchess (annual—Poughkeepsie), N. Y.; Tri-States Medical Association (Port Jervis), N. Y.; Pittsfield, Mass., Medical Association (private); Hampshire District (quarterly—Northampton) and Worcester District (Worcester), Mass., Medical Societies; Bennington County, Vt., and Hoosic, N. Y., Medical Society (annual—Arlington); Philadelphia County Medical Society; Kansas City Ophthalmological and Otolological Society.

**THURSDAY, January 14th:** New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Societies of the Counties of Cayuga, Fulton (annual—Johnstown), and Rensselaer (annual), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

**FRIDAY, January 15th:** New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

**SATURDAY, January 16th:** Obstetrical Society of Boston (private).

## Proceedings of Societies.

### NEW YORK STATE MEDICAL ASSOCIATION.

*Ninth Annual Meeting, held in New York on Tuesday, Wednesday, and Thursday, November 15, 16, and 17, 1892.*

The President, Dr. JEDSON B. ANDREWS, of Buffalo, in the Chair.

*(Continued from vol. Ivi, page 152.)*

**A Plea for the Early Extirpation of Tumors.**—Dr. JOHN W. S. GOULEY, of New York County, then read a paper on this subject. (See vol. Ivi, page 589).

Dr. CHARLES PHELPS said that, as there seemed little doubt as to the transformation of tumors, there should be no question of the propriety of the early extirpation of all tumors. There was no more danger of extension because of the thorough removal of the growth than there would be if it had been allowed to remain.

Dr. JOSEPH D. BRYANT, of New York County, said that, if the diagnosis was made more promptly, and less sentiment indulged in, both by the patient and by the family physician, the death-rate following operations for tumors would be very

greatly decreased. Again, early removal of a tumor, as of the breast, often prevented great mutilation, such as would be required if the operation were postponed to a later stage. He would not say that all small *mævi* should be removed, but he would advise their removal if they continued to grow.

**A New Method of Intestinal Anastomosis.**—Dr. BENJAMIN M. RICKETTS, of Cincinnati, made some remarks on this subject, and demonstrated the mode of performing the operation. The method had first been proposed by Dr. J. P. Murphy, of Chicago, in a paper read before the Mississippi Valley Medical Association. He used a metal "button" modeled after a well-known form of glove fastening in which one portion fitted into the other like a plug into a socket. This plug was, of course, made with a central opening. The gut was simply gathered around each half of the button with a thread, and then the two parts were joined together, leaving the button on the inside, so that it might slough away and escape through the gut.

**Compound Depressed Fracture of the Skull.**—Dr. GEORGE D. KAHLA, of Indiana, presented a report of fifty cases which had been treated in the Harlem Hospital, New York, during the past five years. He considered the chisel a better and safer instrument than the trephine to use in operating in these cases, and quoted Gerster and the late Professor von Volkmann as being of the same opinion. The chisel had been objected to on the ground that the blows of the mallet were apt to cause serious concussion of the brain, but in the cases reported in which this method of operating had been adopted no symptoms of concussion had been observed. It reduced to a minimum the amount of bone removed and was particularly applicable to most cases of linear fracture with depression, or where it was simply desired to cleanse the fissure from septic material. Except in cases where there seemed to be a special liability to the development of suppuration, the author favored the use of sterilized water and sterilized dressings—in other words, aseptic rather than antiseptic surgery for cases of brain injury.

**The Address in Surgery** was delivered by Dr. FREDERICK S. DENNIS, of New York County, who took for his subject *The Achievements of American Surgery*.

**Memoranda, Practical and Suggestive**, was the title of a paper by Dr. HENRY D. DIDAMA, of Onondaga County. He divided his paper into four parts, as follows:

**Early Aspiration in Pleuritis.**—The writer had pursued a plan of treatment somewhat different from that usually recommended. He advised the use of anodynes and strapping of the chest while the pain was severe; quinine, iron, and strychnine, if the patient was in poor condition; and aspiration after the acute symptoms had subsided and percussion indicated the presence of fluid, even if it did not exceed an estimated half-pint. No effort was made to leave a portion of the effusion to be removed by the absorbents. In a reasonably extensive experience he had found this treatment eminently satisfactory. The following were some of its advantages: The fluid was easily, quickly, and safely removed without increasing the local inflammation, weakening the patient, or retarding recovery; it prevented carnification of the lung, and those tender adhesions which, in late aspiration, eventuated in deformity and hæmorrhage into the pleural cavity; it prevented congestion of the lung and dilatation of the right ventricle; and in cases of tubercular pleuritis it tended to prevent or arrest general bacillary infection.

**Mineral Waters, Crude and Refined.**—The author said that many of the waters, like those of Saratoga, Carlsbad, and Crab Orchard, contained a cathartic salt in such quantity that from half a pint to a quart would act as an efficient laxative, and they could be taken daily without injury for an indefinite pe-

riod. A saline solution which was so diluted that its specific gravity was less than that of the serum passed off largely by the kidneys, instead of acting as a laxative. Most of the really valuable mineral springs contained ingredients which in quality or quantity were detrimental. The various lithia springs contained such a small proportion of lithia that one must imbibe one or two gallons of the water to obtain a medium dose of this substance. Ideal, refined, artificial mineral waters might be readily and cheaply made by any capable chemist. It should not be forgotten that no salt of lithium was equal in its solvent power over uric acid to the same quantity of citrate of potassium.

*Coughing made easy in Bronchiectasis.*—Several cases of bronchiectasis were cited in which very marked relief had been obtained by following these directions: The patient was told that by lying in bed or on a lounge, with one hand on the floor and the head almost reaching there, the dilated bronchus, or "pocket," would be inverted, and the fluid accumulated there would run out almost of itself or, at any rate, when aided by a short spell of coughing. The patient was to practice this method four or five times daily so as to anticipate the filling up of the pocket. This idea of "coughing down-hill" he had derived from a small pamphlet published nearly fifty years ago by the poet, Nathaniel P. Willis, who had stated that he had cured himself of consumption by this original device and by horse-back exercise. In all probability, his supposed consumption had been bronchiectasis, but his suggestion was none the less valuable, and the writer had known great relief and comfort to be obtained by this gravity treatment in cases of phthisis when large cavities and excessively annoying cough were present.

*The Insurance Sponge.*—Under this head, he considered the avaricious tendencies of life-insurance companies which sought to obtain valuable services from physicians without paying for them. Such a company, he said, belonged to the family *Octopoda* or *Millipoda*. It had a *head center*, with grasping arms which extended to immense distances, agents as "suckers," and medicine men as "tentacles" or feelers. Through its agents it sucked into its meshes such an enormous surplus of nutriment that it permitted its chief sucker to retain fifty per cent. of the premium blood drawn from the veins of each newly captured victim, while its corpulent head center appropriated an amount of this same vital fluid which, if transmuted into coin, would equal from ten thousand to seventy thousand ducats annually. The tentacles decided as to the sanitary condition of the victim, but they received scanty pabulum for their services, which were, or should be, of the greatest value.

(To be concluded.)

## Book Notices.

*Hygiene and Public Health.* By LOUIS C. PARKES, M.D., D. P. H., Lond. Univ., Fellow of the Sanitary Institute, etc. Third Edition, with Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xx to 523. [Price, \$2.75.]

We are very glad to see that the appearance of the third edition of this excellent work, within three years from the publication of the first, sustains the commendation we originally bestowed upon it.

There are many changes in this edition, the volume being increased by fifty-two pages and five illustrations being added. In the chapter on water there are several additions. The author deprecates the use of water-meters in the houses of the

poor. He calls attention to the infection of water in mains by escaped coal gas in the soil, mentions the polarite filter and Anderson's filtration process, and gives tests for iron and zinc in the water.

In the chapter on the collection, removal, and disposal of excreta and other refuse there are many additions, among the most important of which are an illustrated section on the joints of lead pipes and a description of the method of determining the quantity of chlorine in tidal water into which there is sewage precipitation. Shone's system of pneumatic sewage ejection is described and the use of deodorants in sewage precipitation advised.

In the chapter on air and ventilation the author advances the opinion that the immunity of sewer-men to disease is the result of an acquired resistance. A section on smoke prevention is added that does not solve that problem, and Vogel's test for carbonic oxide in the air is described and recommended.

The chapter on climate and meteorology has been enhanced by a section on weather observations that describes the significance of the isobars of the weather maps.

The chapter on the communicable diseases has been brought into accord with the latest discoveries in bacteriology.

The sections on diphtheria and on epidemic influenza have been augmented by abstracts of the researches made by Dr. Thorne Thorne and Dr. Parsons respectively on these diseases.

The propulsion system of ventilation is now considered the best that can be used for hospitals.

In the chapter on statistics reference is made to the fact that the annual birth-rate in England and Wales has steadily declined since 1876.

The book deserves commendation as being one of the best works on hygiene that can be placed in the hands of the student.

*Hygienic Measures in Relation to Infectious Diseases.* Comprising in Condensed Form Information as to the Cause and Mode of spreading certain Diseases, the Preventive Measures that should be resorted to, Isolation, Disinfection, etc. By GEORGE H. F. NUTTALL, M. D., Ph. D. (Göttingen), Associate in Hygiene and Bacteriology, Johns Hopkins University and Hospital. New York and London: G. P. Putnam's Sons, 1893. Pp. xi to 112.

In this little book the difference between disinfectants, antiseptics, and deodorants is explained, the various disinfectants are referred to and their applicability and usefulness are stated, well arranged practical directions for disinfection are given, and there is an alphabetically arranged list of certain infectious diseases with reference under each to the preventive measures that should be resorted to. There is a final section on surgical disinfection.

The author has brought together the latest information on these topics, and the only criticism that we would make on the book is that he might have condemned the German method of cleaning down the walls of an infected room with glutinous brown bread. There are several other articles that are equally efficient in cleansing walls, and that do not involve the risk of furthering infection.

The book is not only useful to the practitioner, but particularly available for the trained nurse or intelligent layman.

## BOOKS, ETC., RECEIVED.

*A Handbook of Pathological Anatomy and Histology.* With an Introductory Section on Post-mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M. D., LL. D., Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia Col-

lege, New York, and T. Mitchell Prudden, M. D., Professor of Pathology and Director of the Laboratories of Histology, Pathology, and Bacteriology, College of Physicians and Surgeons, Columbia College, New York. Fourth Edition. Illustrated by Three Hundred Wood Engravings printed in Black and Colors. New York: William Wood and Company, 1892. Pp. xvii-3 to 715.

Syphilis and the Nervous System: being a Revised Reprint of the Lettsomian Lectures for 1890, delivered before the Medical Society of London. By W. R. Gowers, M. D., F. R. C. P., F. R. S., Consulting Physician to University College Hospital. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. viii-9 to 131. [Price, \$1.]

Notes on the Newer Remedies, their Therapeutic Applications and Modes of Administration. By David Cerna, M. D., Ph. D., Demonstrator of Physiology in the Medical Department of the University of Texas, Galveston. Philadelphia: W. B. Saunders, 1893. Pp. viii-17 to 177. [Price, \$1.25.]

Studien zur Physiologie und Pathologie des Blutes und der Lymphe. Von Dr. M. Löwit., o. ö. Professor der allgemeinen und experimentellen Pathologie in Innsbruck. Mit zwei lithographischen Tafeln. Jena: Gustav Fischer, 1892. Pp. 141. [Preis, 4 Mark 50 Pf.]

Report of the Surgeon-General of the Army to the Secretary of War, for the Fiscal Year ending June 30, 1892.

Typhoid Fever in the Light of Modern Research. Facts and Doubts about Cholera. By L. Bremer, M. D., St. Louis, Mo. With Two Phototypes.

The Weight of the Body in its Relation to the Pathology and Treatment of Clubfoot. By A. B. Judson, M. D., New York. [Reprinted from the *Boston Medical and Surgical Journal*.]

Some Practical Points in the Diagnosis of Spinal-cord Lesions. By Frederick Peterson, M. D., New York. [Reprinted from the *Medical Record*.]

A Plea for a more Conservative Treatment of Nasal Affections. By Reuben Jeffery, M. D. [Reprinted from the *Brooklyn Medical Journal*.]

Multiple Benign Cystic Epithelioma of the Skin. By J. A. Fordyce, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases*.]

Vaginal Hysterectomy and High Amputation, or Partial Extirpation by Galvano-cautery, in Cancer of Cervix Uteri. An Inquiry into their Relative Merits. By John Byrne, M. D., Brooklyn.

The Collegiate Degree as an Evidence of Fitness for the Study of Medicine. By L. Harrison Mettler, A. M., M. D., Chicago, Ill. [Reprinted from the *Bulletin of the American Academy of Medicine*.]

Twenty-third Annual Report of the State Board of Health of Massachusetts.

Choleraabehandlung und Infusionstherapie. Von Dr. J. Michael. [Sonderabdruck aus der *Deutschen medicinischen Wochenschrift*.]

Verschiedenheit des Krankheitsverlaufes der Cholera in den verschiedenen Epidemien. Von Dr. J. Michael, in Hamburg. [Sonderabdruck aus der *Deutsche Medizinal-Zeitung*.]

Subcutane Infusion bei Cholera und acuter Anämie. Von Dr. J. Michael, in Hamburg. [Sonderabdruck aus der *Deutschen medicinischen Wochenschrift*.]

Les salpingites. Par M. le Dr. Landau. [Extrait des *Annales* publiées par la Société royale des sciences médicales et naturelles de Bruxelles.]

Du traitement des suppurations rebelles du sinus maxillaire. Par le Docteur A. Cartaz. [Extrait de la *Revue internationale de rhinologie*, etc.]

Purpura Hæmorrhagica. By B. K. Rachford, M. D., Newport, Ky. [Reprinted from the *Medical News*.]

Anæmia of Tuberculosis. By B. K. Rachford, M. D., Newport, Ky. [Reprinted from the *Archives of Pediatrics*.]

## Reports on the Progress of Medicine.

### PSYCHIATRY.

By FREDERICK PETERSON, M. D.,  
PATHOLOGIST TO THE NEW YORK CITY LUNATIC ASYLUMS; PROFESSOR OF  
NERVOUS DISEASES IN THE UNIVERSITY OF VERMONT.

**Psychoses of Toxic Origin.**—Professor Wagner, of Grätz (*Jahrb. f. Psych.*, Bd. x, Heft 2 and 3), describes first in his paper the neuritic and post-febrile psychoses. In certain acute psychoses he has been able to discover a rudimentary polyneuritis. He discusses some cases of acute insanity following tuberculin injections, and pellagra and ergotism, and believes that the class of toxic psychoses will be enlarged by more exact study of acute mental disorders. Very possibly many cases of acute psychosis are due to auto-intoxications arising from absorption from the intestinal tract, as observed intestinal disturbances and peculiar conditions of the urine must lead one to suppose. All acute toxic psychoses appear under the same form as an acute mania, and tend to run into amentia.

On the same lines Knörr (*Allg. Zeitschr. f. Psych.*, xlviii, 6) describes several cases of toxic insanity, among them four due to alcohol, which presented an acute hallucinatory form of insanity, beginning with auditory hallucinations and tending to develop persecutory delusions, and to which he gives the name, following von Speyr and Tuzek, of acute alcoholic paranoia. All the patients recovered. In addition, he gives the history of a case of morphine-cocaine insanity and one of influenza psychosis which ran the same course as his alcoholic cases.

Dr. Henry M. Hurd (*Am. Journal of Insanity*, July, 1892) reviews some of the literature of post-febrile insanity, and relates three cases—one of maniacal excitement following ovariectomy, one of insanity with systematized delusions arising in pneumonia, and one of melancholia developing during convalescence from typhoid fever. He would divide all cases of post-febrile insanity into three classes—those due to shock, those produced by specific poisons, and those consequent upon anæmia and nervous exhaustion. Under the second heading he would comprise the delirium of fevers, both intermittent and exanthematous, of pneumonia, and of uræmia; the transient insanity of influenza; the mental confusion of multiple neuritis; the delirium of iodoform, salicylic acid, and chronic alcoholic poisoning; and the delirium of puerperal fever.

Dr. Theodore H. Kellogg (*Journal of Nerv. and Ment. Dis.*, October, 1892) contributes a thoughtful article upon the toxic origin of insanity, making the following subdivisions:

I. *From Mineral Poisons and Certain Drugs.*—1, lead; 2, mercury; 3, arsenic; 4, chloral; 5, bromide of potassium; 6, iodoform; 7, paraldehyde.

II. *From Vegetable Poisons.*—1, opium; 2, belladonna; 3, cannabis indica; 4, hyoscyamus; 5, stramonium; 6, tobacco; 7, cocaine; 8, conium; 9, erythroxylon coca; 10, astragalus Hornii; 11, secale cornutum.

III. *From Intoxicants and Noxious Gases.*—1, alcohol; 2, ether; 3, chloroform; 4, carbonic oxide; 5, sulphurous acid gas.

IV. *From Eruptive Fevers, Diathetic States, and other Diseases.*—1, typhoid fever; 2, small-pox; 3, scarlet fever; 4, in-



termittent fever; 5, rheumatism; 6, gout; 7, lithæmia; 8, puerperal state; 9, *la grippe*; 10, cancer; 11, syphilis; 12, tuberculosis.

#### V. From Self-intoxications.

Regarding the last group, the author says that some mental disorders are caused by the absorption of putrefactive alkaloids supposed to be formed by the action of bacteria on organic matter (ptomaines) and basic substances resulting from metabolic changes in the tissues (leucomaines). It has long been known to physiologists that certain excretions contain substances poisonous to the organisms excreting them, and it is not surprising that autogenous poisons should be found in the excretions of the human body. He quotes Bouchard to the effect that a sufficient amount of poisonous alkaloids is daily formed in the intestines to prove fatal if absorbed. The albumoses are among the most powerful of autogenous poisons, and Köppen, Kolnitz, and Fürstner have found albumosuria in cases of insanity.

The reviewer has recently published (*Bost. Med. and Surg. Jour.*, Oct. 6, 1892) the details of three cases of acute mania, in all of which the patients recovered, caused in rubber-workers by the inhalation of bisulphide of carbon, the first cases of purely psychic disorder that have been described as due to this substance, although, as is well known, a polyneuritis is not an uncommon result of its inhalation.

Dr. J. Wigglesworth (*Brit. Med. Jour.*, 1892, No. 1,646) has just described two cases of acute mania due to the inhalation of sulphureted hydrogen. One of the patients recovered; the other remained permanently insane.

**General Paralysis in a Boy.**—Very few cases of general paralysis appearing before the age of twenty have been recorded. Charcot and Dutil (*Arch. de neurol.*, March, 1892) detail the history of a case which they consider indubitable. There was no luetic history, but a strong neuropathic taint in the family. The lad was well until the age of fourteen, when there began a gradual development of tremor of the hands, stammering of speech, silliness of manner, and mental enfeeblement. At the time of examination he was in his seventeenth year. He was apathetic and dull, he walked clumsily, and his mind was much impaired. The knee-jerks were exaggerated, the pupils were unequal, and his articulation was imperfect. There were tremor of the hands and fibrillation in the tongue, in the lips, and sometimes in the facial muscles. He had peculiar attacks of fornication, beginning in the right foot and gradually involving the whole right side (sensory epilepsy).

**Syphilis and General Paralysis.**—The relationship of the luetic process to parietic dementia, so often discussed by alienists, has recently received further consideration by several authors. Among others, E. A. Homén has described a peculiar typical disease in three sisters in the form of a progressive dementia accompanied by extensive vascular changes which indicated hereditary syphilis (*Arch. f. Psychiatrie und Nervenkrankheiten*, xxiv, 1).

Commenting upon this, Sommer advanced the hypothesis that all cases of tabes and progressive paralysis not due to individually acquired syphilis must be considered as endogenous degeneration from hereditary syphilis (*Ctrbl. für Nervenheilk. und Psych.*, October, 1892).

Jacobson, of Copenhagen (*Jour. of Ment. Science*, April, 1892), presents the statistics of one hundred cases of general paralysis in women, in thirty-seven per cent. of which syphilis was certainly present, and in all probability sixty-five per cent. were really suffering from this disease. Comparing this with other ætiological factors, such as alcoholism (twenty-seven per cent.) and heredity (twenty-eight per cent.), he decides that syphilis is by far the most important cause of paralytic dementia.

Oebeke, of Bonn (*Zeitschr. f. Psych.*, xlviii), found fifty-seven per cent. of his cases of general paralysis to be syphilitic, whereas only twelve per cent. of all other forms of insanity had a luetic origin.

Dr. H. M. Bannister (*Jour. of Nerv. and Ment. Dis.*, December, 1891), in an ætiological analysis of two hundred and thirty-four cases of general paralysis, found over seventy per cent. of the patients undoubtedly affected with syphilis, and adding cases where lues was probable though not certain, the percentage was increased to nearly eighty-nine per cent. Over fifty of those that were infected with syphilis were also intemperate. The author looks upon syphilis and alcohol as the most frequent antecedents of paralytic dementia.

The reviewer has pointed out (*Medical Record*, May 21, 1892) that in Egypt, where there is no more common disease than syphilis, there are no cases of general paresis to be found among the native Egyptians at all—a fact that should lead us to be slow in regarding this process as the leading ætiological factor in paralytic dementia, and particularly to avoid giving too much credence to the rather remarkable hypothesis of Sommer's noted above.

**Affections of Speech in the Insane.**—In the *American Journal of Insanity* for July, 1892, Dr. T. H. Kellogg contributes an interesting article to the rather meager and scattered literature of this subject. He classifies the affections of speech in the insane as follows:

I. Lesions involving centers or tracts.

1. Parietic speech. 2. Alcoholic or other toxic disorder of speech. 3. Scanning speech. 4. Organic dementia with various forms of aphasia. 5. Speech defects in idiocy and imbecility.

II. Speech affections the immediate outcome of the physical disease.

1. The formation of new words. 2. Echo speech. 3. Rhyming and repetitive speech. 4. Histrionic speech, including gesture language. 5. Retarded and accelerated speech. 6. Mutism. 7. Abulic speech.

The chief characteristics of parietic speech are retardation, indistinctness, repetition of syllables or words, failure of labial or lingual sounds, tremor of voice, nasal intonation, and explosive utterance.

In alcoholic speech there is no inco-ordination, but there are motor impairment and natural failure of innervation. In other words, the speech of general paralysis is ataxic, that of alcoholism truly parietic.

Scanning speech in its most typical form is found only in insanity complicated with multiple sclerosis; but there is a species of scanning utterance found both in alcoholic and parietic dementia.

In organic dementia there may be motor aphasia, agraphia, word-blindness, and word-deafness.

In idiocy and imbecility the affections are due to arrest of development; speech may be entirely wanting or limited to a few half-articulate sounds. Sometimes there is automatic repetition of words for hours or days together, as in some chronic states of insanity. Logorrhœa and mutism, as well as echo speech, are noted in imbeciles at times.

The coining of new words is most common in imbecility, paranoia, and chronic mania.

Echo speech is noted in congenital mental weakness, terminal dementia, paranoia, and hysterical and epileptic insanity.

Rhyming is commonest in pubescent insanity, paranoia, and chronic mania.

The intonation and gesture of histrionic speech are found in most forms of insanity, tragedy in melancholia, comedy in chronic mania, buffoonery in imbecility or partial dementia.



Alcoholic and parietic dements usually furnish the best examples of retardation of speech-rate, though it is occasionally met with in epileptic insanity.

Accelerated speech is chiefly presented in maniacal cases.

Mutism, apart from stuporous states and idiocy, is rare, though occasionally due to the influence of delusions.

Abulic speech is most common in hysterical and epileptic insanity, in paranoia, and in the instinctive insanity of childhood. It is a morbid tendency to commit improprieties of speech. The patient is impelled to be impudent, profane, or obscene, and is unable to control the impulse.

**Mental Disturbance from Sulphur Compounds.**—Dr. B. W. Richardson has a very suggestive editorial in the *Asclepiad* for the third quarter of 1892 upon the effect of mercaptan or sulphur alcohol upon the nervous system and mind. A person brought under its influence has a desire for sleep, a strange, unhappy, dreamy sensation as from some actual or impending trouble, succeeded by an extreme sense of muscular fatigue, so that the limbs feel too heavy to be lifted, with depression and slowness of pulse—effects lasting for several hours until the sulphur is eliminated. These experiments were conducted in 1870. He further noted at that time that this and other sulphur compounds might be readily constructed in the living animal tissues, and that there was opened to physicians a new field of inquiry relative to the presence of sulphur in the expired air or other excretions of patients. He believes that the breaking up of albuminous textures in disease is often attended by the formation of volatile sulphuretted organic compounds. Remembering how minute a proportion of sulphur alcohol will produce mental depression bordering upon suicidal propensity, it might be inferred that the formation of sulphur compounds of this character in the body would account for many examples of excessive temporary prostration. In a further research he came to the conclusion that the influence exerted over nervous matter by the element sulphur, in disintegration, was so marked in mental aberration that it was inevitable that melancholia and other nervous affections, attended with or without paralysis of voluntary muscles, must some day be ascribed to the presence of compounds of this element; that there was abundant evidence from odor alone of the presence of mercaptan in the excretions from the lungs, the skin, and the alimentary canal; and that here were indications for a rational explanation of insane conditions produced as deliriums from intoxication by poisons developed in the vital organic chemistry.

**Chorea and Insanity.**—In the *Johns Hopkins Hospital Reports*, vol. ii, No. 6, Dr. H. J. Berkley describes a case of chorea insaniens, which is maniacal excitement arising in an ordinary chorea, in a way similar to its occurrence as a complication of rheumatism at times. The case was that of a young woman, aged twenty-seven, a teacher, of fairly good family history. A brother had had chorea for a month in childhood. She had twice suffered from articular rheumatism—once at the age of sixteen and once at the age of twenty-three. During the second attack she was delirious for five weeks and had choreoid movements. She was admitted with such movements affecting most of the voluntary muscles of the extremities, face, and body. Articulation was difficult. The movements were violent and she tossed from one side of the bed to the other continually. Her mind was clear until eleven days after admission, when maniacal excitement began and continued, with more or less retrogression and exacerbation, until her death, some eighteen days after admission. The case is particularly valuable for the very careful autopsy and microscopic examination of the nervous system. The paramount changes were meningo-vascular—such as, in the opinion of the author, could only be produced by some pathogenic germ or its soluble products.

Dr. R. M. Phelps (*Jour. of Nerv. and Ment. Dis.*, October, 1892) reports briefly thirteen cases of hereditary chorea gathered together from various insane asylums. In all of these cases there seemed to be a tendency to dementia. The author believes that hereditary chorea is not so rare in this country as generally supposed, and that, as insane asylums receive the greater proportion of these cases, the pathology of the disease might well be studied there.

**Mental Aberration and Nasal Disorders.**—Dr. Carpenter, in an interesting paper in the *Jour. of the Am. Med. Association*, Nov. 5, 1892, shows the intimate relations existing between morbid conditions of the nose and diseases of the central nervous system. We can not do better than quote from the author's paper in order to show how extensive this relationship is:

"Neuralgia, partial paresis, hyperæsthesia, analgesia of the extremities, epilepsy, chorea, and accompanying chronic nasopharyngeal catarrh, are readily explained through reflex irritation, and subside when proper treatment is given the catarrh.

"The sequels of naso-pharyngeal catarrh are reflex cough, sneezing, stenosis of nasal cavities, ocular catarrh, asthenopia, aural catarrh, headache—either frontal, vertical, or occipital—nasal polypi, tonsillitis, enlarged tonsils, hypertrophy of the submaxillary, anterior, and posterior cervical glands, patulency of Eustachian tubes, hemorrhage from the throat—either the naso-pharynx, larynx, or trachea—epistaxis, laryngitis, tracheitis, bronchitis, and catarrhal phthisis, neuralgia or numbness of the limbs or trunk, anæsthesia or hyperæsthesia of the skin, paresis of arm and forearm, dyspepsia, hay fever, irritability, melancholia, partial loss of memory or intellectual faculty, insomnia, frightful dreams, agoraphobia, vertigo, palpitation of the heart, neurasthenia, stammering, suicidal tendency, asthma, chorea, epilepsy, loss of taste, anosmia, anæmia, anorexia, deafness, reflex irritation of the genito-urinary organs, an abundant discharge of nasal mucus or sneezing during coitus, aphonia, erythema and herpes of the nasal integument and lining, tinnitus aurium, otalgia, dysphagia, and constipation. In cases of nasopharyngeal catarrh of long standing there is a tendency to irritation, catarrhal inflammation or debility of all the mucous membranes of the body."

This will be suggestive reading to the oculist and gynecologist who may each be rival claimants of the same domain.

**The Prognosis of Acute Mania.**—Some of the conclusions arrived at by Willerding relative to the results in cases of acute mania are valuable and instructive (*Review of Insanity and Nervous Disease*, September, 1891, quoting *Zeitschr. für Psychiatrie*, 1891). Seventy per cent. recover after an average duration of several months. Heredity is not necessarily an unfavorable omen. In mania due to disease, alcoholism, or pregnancy, the prognosis as to duration and recovery is good. Mania arising from slight injuries to the head generally ends in recovery. Return of the menses, with concomitant mental improvement, indicates early recovery. Youth augurs well for a case of acute mania. In the recurrent form the probability of lasting cure is small. The prognosis is bad in a case of long standing. A sudden onset is unfavorable, except in cases occurring in pregnancy or as a result of head injury. A sudden arrest of maniacal excitement must raise the fear of the recurrent form, or of an early relapse. Great increase in weight before the beginning of the quiet stage is unfavorable. The worse the attack the graver the prognosis. Paralysis and convulsions must be looked upon as serious complications.

**Atypical Forms of Paralytic Dementia.**—In the *Jour. of the Am. Med. Assoc.*, Sept. 4, 1892, Dr. J. G. Kiernan discusses some of the impure forms of paresis as observed by himself and other alienists. Typical general paresis develops in a normal organization. But in an organism already suffering from a

neurosis due to phthisis, gout, syphilis, rheumatism, lead-poisoning, sunstroke, heredity, ataxia, or other causes, the course of general paresis may be atypical. Foville has called attention to cases of paralytic dementia in which there were alternations of maniacal exaltation and melancholic depression, and has proposed to call them paresis *à double forme*. The resemblance of such cases to circular insanity may be very great. When intellectual disorder is added to the maniacal exaltation of circular insanity there may exist grandiose illusions similar to those of general paralysis. Even when there is no delusion the resemblance may be very great. Sometimes in general paresis there is no speech or motor disorder. Again there may be a certain degree of tremulousness of speech in circular insanity. Falret has noted in some cases of the latter disease pupillary derangements and epileptoid and apoplectoid attacks. Regis maintains that the parietic is benevolent, kind-hearted, generous, even prodigal, while the circular lunatic is wicked, irritable, ironical, and clever in injuring everybody. But the author claims to have observed the opposite of these qualities in the two disorders respectively. The duration of the alternating type is longer than that of typical dementia paralytica. Paresis due to lues, trauma, phthisis, sunstroke, saturnism, and in particular heredity, is exceedingly apt to assume this circular character. The rheumatic and gouty types have prolonged remissions.

**Official Public Supervision of Prisons by Alienists.**—Dr. Jules Morel, Commissioner in Lunacy for Belgium, gave an interesting account to the Psychological Section of the British Medical Association in July last (*Journal of Mental Science*, October, 1892) of the creation of a medico-psychological service in his country in connection with the prisons. Three alienists have been appointed to supervise the mental condition of prisoners. He contended that prisons always contain a certain proportion of insane people among their inmates, and he advocated the importance of having them looked after in other countries as they were in his own. The aim of the alienists appointed by the Belgian Government was to remove and to certify the mental cases to asylums, and to call the attention of the prison officials to any doubtful cases. The system had worked most favorably in Belgium, and had been the means of giving many prisoners, whose insanity had not previously been recognized, a fair chance of recovery.

#### Intestinal Disinfection in Some Forms of Acute Insanity.

—A paper read by Dr. John Macpherson before the British Medical Association in July last (abstract in *Journal of Mental Science*, October, 1892) will be read with interest by those who find intestinal antiseptics valuable in certain nervous diseases. The author was inclined to criticize the too great employment of narcotics in asylums, often leading to the emaciation of the patient and the depression of his vitality. It was a matter of common knowledge that acute attacks were frequently averted by the simple exhibition of a purgative, for constipation undoubtedly tended to the exacerbation of the symptoms of acute mental disease, and an instantaneous, though perhaps temporary, improvement followed the relief of a loaded intestine. As pointed out by Brunton, nux vomica in small doses acted in some cases as a mild hypnotic; and Bell, in his work on the nervous system, had given notes of a case, among others, where a man was cured at once of a painful nervous affection by a simple purgative. We must not forget the depression accompanying hepatic derangement, nor that form of mental depression which we might describe as visceral. He pointed out that the acid of the gastric juice was primarily and chiefly antiseptic, and that where this secretion was perverted, as in acute mental disease, its antiseptic power was diminished. The line of treatment he now advocated was the exhibition of antiseptics to remedy this defect. He selected a suitable case, washed out the stom-

ach, and then gave a dose of calomel varying from two and a half to four grains at night, with a mild cathartic in the morning. This was followed by the exhibition of mild laxatives daily. On the second day naphthalin, in ten-grain doses, three times daily, was given between meals, gradually increasing the dose until eighty grains were administered during the twenty-four hours. He had never noted any harmful effect from these doses. The author gave details of cases illustrating the value of this method of treatment. During the treatment nitrogenous foods were eliminated as much as possible from the patient's dietary. In thirty acute cases thus treated there had been no apparent interference with the general health. The action of the drug in preventing and removing anæmia was very marked. The bodily weight increased steadily. The tendency of the skin to pigmentation in melancholia was checked, and the skin lost its dry appearance. The promotion of sleep, however, was one of the most gratifying results, for, when fully under the influence of naphthalin, the patients slept normally and naturally for seven or eight hours and the sleep was undoubtedly not narcotic. He considered the remedy of great value in acute melancholia. He pointed out that naphthalin had reduced the sulphates in the urine, and that the faces of patients treated with it were devoid of smell was evidence of its antiseptic effects.

### Miscellany.

**Railway Surgery.**—At the second annual meeting of the New York State Association of Railway Surgeons, held in New York city on November 14, 1892, the president, Dr. George Chaffee, of Brooklyn, delivered the following address (published in the *Railway Age and Northern Railroaders* for December 16, 1892):

This being the first meeting of our society since its organization one year ago, we may perhaps be pardoned for briefly referring to this topic. In looking over the field in 1891 I thought that I could see room and work for a State society of railway surgeons. I wrote to many surgeons of the State, asking their opinion in regard to organizing a State society. Answers to nearly every letter were received, and not one contained a word of discouragement. All were in favor of organization. A programme was arranged and the first meeting called for October 27, 1891, at Bensonhurst, and the society was organized with twenty-two charter members. Several topics of interest to railway surgeons were also discussed at that meeting. The calling of that meeting and the organization of a State society by one of our noted surgeons would not have been counted very much of a task; but when we consider that the meeting was called by a stranger—for I had never had the pleasure of meeting one of our members before October 27, 1891—you can at once see that it was the object of that meeting, railway surgery, and not the founder of this society, that brought out such a full attendance.

This thought, the object of our meeting, brings us to the interesting topic of railway surgery. I offer no apology for the terms railway surgery and railway surgeons. Railway and accidental surgery, aided by antiseptic measures, are fast becoming a special, distinct, and popular branch of surgery. It was while practicing on the plains of Nebraska that I received an introduction to this line of surgery. And here allow me to say that indirectly we are indebted to the West for the organization of this society. I was young and inexperienced, but my first case was in need of no service except from the coroner. The victim, a young lad, had attempted to step upon the front platform of the last car as a train was slowing up at a station. His foot slipped, he lost his hold, and I saw him as he fell, with both arms extended and resting with his neck across the rail. Four car wheels passed over his neck and arms. To me the point of interest in this case was the condition in which the skin was left; the bones of his neck and arms were finely

crushed, but the skin over the injured parts remained unbroken. Practice with the wood and iron construction gangs and along the line with employees and patrons after a road has been put in operation has convinced me that there is such a thing as railway surgery.

Up to the present time the literature of this branch of surgery is limited. Aside from the proceedings of the National Association of Railway Surgeons I believe but two works have been published—one, Railway Surgery, by Dr. C. B. Stemen, of Fort Wayne, the other, Railway Injuries, a reprint from *Wood's Monographs*, by Herbert W. Page. Since June, 1891, a vast amount of current literature on this subject has been published by the National Association of Railway Surgeons in the *Railway Age*. While this may not be considered strictly ethical, for the *Railway Age* is not a medical journal and our papers are read by few medical men other than railway surgeons, still the selection of the *Railway Age* by that body of surgeons has already accomplished a great work which could have been reached in no other way.

1. It has given us a weekly journal on railway surgery.

2. It has in one year been instrumental in more than quadrupling the membership of that society.

3. It has enabled the management of great corporations to become better acquainted with the character of services rendered by their surgeons and has rendered the relations between them more cordial.

When surgeons of note from our large cities are elected to honorary membership in the national association, I would suggest that, in addition to their certificate of honorary membership, they be supplied each year with the same form of ticket as regular members. Last May our national membership tickets alone were good for transportation on many through lines. The Philadelphia and Reading was, I believe, the first Eastern line after the Chesapeake and Ohio to make this very liberal offer. I believe that in 1894 a membership ticket will, if the location of the meeting requires it, secure for its holder transportation from the Statue of Liberty to the Golden Gate and return. And here is the point I desire to make. If those experienced surgeons are supplied with tickets good for the trip to the meetings of our State and national associations, many of them, I trust, may be induced to meet with us and take part in the discussion of papers, which is often the most valuable and interesting part of a paper. In this way the literature of railway surgery will receive a contribution the practical value of which to surgeons, corporations, and their patrons is beyond estimation. With the names of such surgeons on our programmes the papers will be looked after by journals of surgery and we shall be known as a scientific body. In a general way much, and perhaps too much, has been written about injuries to the spine. I am certain that railway corporations must realize that too much of it has been carefully read by a class of people for whom it was never intended. Injuries to the spinal cord and coverings, including the osseous framework, is a field offering great inducements for original work. And for the man who could climb to fame upon this ladder the transverse and spinous processes would seem to offer peculiar advantages. Surgeons, and especially those doing railway surgery, are very much in need of a standard of some system of examination and means of diagnosis that will, when called to examine cases of spinal injury, enable them to separate real from alleged injuries.

Of late the surgical department has become of great importance in the railway service of this country. No railway system is complete without this department. In putting a surgical department in order the first thing to be done by the management is the selection of a chief surgeon. The chief surgeon is the person and the only person to select his staff of assistants for surgical service along the line. The mistake is often being made by the management of some corporations of dispensing with the services of chief surgeon. Such a staff of surgeons is without an official head, and must fail to fully accomplish the end for which it has been established. With due respect to general managers and superintendents of railways in their official capacities, they are certainly out of place when they undertake to manage the office of chief surgeon and give directions in the practice of surgery and in the transportation of surgical cases. Corporations with such a staff of surgeons as I have described should not allow the good work to go unfinished. In times of accident and a serious wreck, the staff will require the advice and counsel of a chief surgeon; the management, as well as its

excited and injured patrons, will derive comfort and benefit from the directions of an experienced leader.

What railway of the East would think of asking a chief surgeon from the West to superintend its line? What railway of the West would think of asking a general manager from the East to take charge of its surgical department?

A chief surgeon has an important and valuable work to perform. In selecting his staff he must choose men who are willing to study and work, willing to discard old and useless methods and accept those new and valuable, thus keeping pace with the rapid changes in the technique of modern surgery.

Excellent papers have been written and many suggestions made on the subject of relief trains. As yet in the East very little has been done in a practical way toward filling a long-felt, and in times of a wreck a sore and extremely painful, want. Generally speaking, I do not favor the selection of frightful examples and the holding of them up as object lessons, but in considering relief trains I believe that such a remedy is clearly indicated. Let us, if you please, hastily recall a few of the wrecks which have shocked and startled this whole country, beginning with the one at Ashtabula, Ohio, in 1876, where Mr. and Mrs. P. P. Bliss, with many others, perished; the Spuyten Duyvil disaster of 1881, where so many school children on their way to this city lost their lives; the disaster at Chatsworth, Ill., in 1887, where the second section of an excursion train, nearly all sleepers, crashed through a burning bridge at midnight; the one at Ravenna, Ohio, July 3, 1891; at Hastings, this State, last Christmas eve, and the one at Harrisburg, Pa., last summer. Accidents of this character are liable to visit any corporation doing a passenger business, and when a message bearing news of such an occurrence is received it certainly will be a satisfaction and comfort to corporations and patrons alike if the management is in a position to dispatch a well-equipped relief train to the scene of the wreck. A relief or ambulance car, as described in the *Railway Age* in 1891, with its doors placed at each corner instead of at each end of the car, so as to admit a stretcher with ease, with small operating-room, stretchers, cots, and necessary surgical supplies, would to my mind, with two additions, constitute an ideal relief train. In fact, it would be a portable railway hospital. The two additions I would propose are:

1. I would suggest that the interior of the relief car and all its furnishings be so constructed of suitable material, with complete drainage, as to allow of its being thoroughly flushed, thus making it as near aseptic as possible.

2. Such a relief car, no matter how many surgeons may be on duty when it starts for the scene of a wreck, would certainly be incomplete without a trained nurse. Such relief cars should be, and I hope soon will be, distributed at convenient points along the line of every road, and connected with the railway hospitals of every line in America. And this brings us to the topic of railway hospitals.

To surgeons connected with hospitals in our Eastern cities it may appear out of order to write upon this topic. I presume, however, that the views of our friends from Jersey City will not differ materially from my own, that city now being the terminus of so many trunk lines. Again, as in the case of chief surgeons, in order to find well-appointed railway hospitals we must journey West, and we shall not look in vain; for after reaching St. Louis and Omaha we shall find on every hand splendid hospitals devoted entirely to the service of railway surgery. These hospitals are maintained by monthly assessments of from twenty-five to fifty cents for each employee. When misfortune overtakes one of these men and a hand or foot, an arm or leg is crushed, he has the satisfaction of knowing that he will be taken to an institution specially prepared for treating such cases, that his bills are paid in advance, that he has but one thing to do—viz., to aid Nature and his surgeons in working out the repair. Although this service is paid for by the patient, the adoption of such a system shows tender care and forethought on the part of corporations, and experience has shown that an injured person with such surroundings is not at all likely to dream of damage suits—an item of no small account, for in many cases enough has been paid by corporations to build and equip suitable hospitals along their entire lines.

The hospital plan is able to stand alone. Reference to annual reports is ample proof of the character of work that is being done. The



only apology I offer for considering this topic in my paper is to once more bring it before this association and to the notice of the management of our Eastern lines. Our large Eastern cities may, like Eastern lines, be rather slow to see the need of railway hospitals. This is a question, however, which lies directly between the chief surgeon and general manager of every line. New York, the metropolis of America, with her great hospitals, both general and special, is not yet quite ready to add another to her long list. New York's peculiar location will for a time delay the coming of a railway hospital. But when more time has been consumed in national legislation, and the historic Hudson has been spanned by a mighty bridge, making the metropolis a railway terminus and revolutionizing passenger traffic, then, and perhaps not until then, will New York see and feel the need of railway hospitals and relief trains.

Forty years ago but few men could foresee that gynecology would become one of the most popular specialties of our profession. Those of you who are familiar with the life of J. Marion Sims know with what opposition he met when he came to New York and undertook to gratify the ambition of his life by establishing the Woman's Hospital. To-day the world knows that he was finally successful, and the great work he started will go on forever. If the establishment and promotion of railway surgery in the East as a distinct branch of surgery did not rest with those directly interested, one whose ambition leads him in this direction might expect as strong opposition as did the one whose name we have mentioned. Fortunately, as we have already stated, the hospital question is one to be agitated and settled mainly between chief surgeons and corporations. And resting in a position so favorable I predict that within ten years New York city will have a railway hospital, and that classes attending our post-graduate schools will be instructed in railway surgery at the New York railway hospital.

To repeat, and in conclusion, I desire to say that I think the *Railway Age* is a journal that should be read by railway surgeons and general managers. It is a journal of high order, and he who reads it will be instructed. A surgical department is just as necessary to a railway corporation as a family physician is to the family that is fortunate enough to secure one in whom it has confidence. Every general manager has, I believe, the right, if he so desires, to select a chief surgeon for his system. The chief surgeon will, in turn, look after his staff and the establishment of the department. There is no car on any line of more importance or needed any more in its season than the relief car. Any day-coach may be remodeled so as to make an elegant but inexpensive relief car. No corporation having commenced to set the surgical department in order will rest from its labors without a suitable number of hospitals. And for fear that this work may at first sight appear too great, I will say that hospitals need be placed only at about every one hundred miles along the line. And here, as in the case of relief cars, the cost need not be high. In many instances at division towns a portion of a building already in possession of the corporation may be so remodeled as to answer all the requirements of an emergency room, and where necessary a cozy hospital may be erected with the expenditure of but a very few dollars of the company's money. Surgical departments not only save money for a corporation, but the day is coming when they will assist in drawing first-class patronage. What employee would not work with better grace when he knows that so much has been done for his comfort when sick and injured? What traveler would not secure transportation over a line thus protected, leaving competing lines whose management look upon such departments as unnecessary?

In retiring from the office to which you so kindly elected me I wish to thank you for the honor, but I feel that my work for this society and for railway surgery in the East has but just commenced. In performing the duties of the office I have tried to please all and at the same time do work that would place this association firmly upon scientific feet, and I desire to thank our friends and members for their hearty support. As time passes I shall ever look with pride upon the growth and prosperity of the New York State Association of Railway Surgeons.

**The New York Academy of Medicine.**—The programme for the meeting of Thursday evening, the 6th inst., included a paper entitled *A Contribution to Cerebral Surgery; Diagnosis, Localization, and Operation for the Removal of Three Tumors of the Brain*, with some Com-

ments upon the Surgical Treatment of Brain Tumors, by Dr. Charles McBurney and Dr. M. Allen Starr.

At the next meeting of the Section in General Surgery, on Monday evening, the 9th inst., Dr. Willy Meyer is to read a paper entitled *Incision of Retropharyngeal Abscess*, according to Antiseptic Principles, from the Neck; and Dr. Howard Lillenthal will present one entitled *What is the Site of Infection producing Epitrochlear Glandular Enlargement?*

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 10th inst., Dr. F. Tilden Brown will read a paper on the Treatment of Posterior Urethritis; and Dr. Samuel Alexander will read one on the Abuse of Intravascular Injections.

At the next meeting of the Section in Pædiatry, on Thursday evening, the 12th inst., there will be discussions of surgical subjects as follows: The Best Methods of dressing Fractures of the Thigh in Infants—the Indications for Each, by Dr. R. H. Dawbarn; and the Best Method of securing a Good Result in Fracture of the Clavicle in "Run-about Children," by Dr. Reginald H. Sayre.

At the next meeting of the Section in Neurology, on Friday evening, the 13th inst., Dr. Joseph Collins will read a paper on Acute Myelitis and Hæmatomyelia.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*News-papers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Original Communications.

### A CLINICO-PATHOLOGICAL STUDY OF INJURIES OF THE HEAD.

WITH SPECIAL REFERENCE TO  
LESIONS OF THE BRAIN SUBSTANCE.\*

By CHARLES PHELPS, M. D.,

SURGEON TO BELLEVUE AND ST. VINCENT'S HOSPITALS.

Two years ago I read before this association, in the course of a general discussion upon cerebral surgery, a very brief paper upon cerebral contusion. Since that time a very considerable number of cases of serious injuries of the head, almost all of which have involved lesion of the brain substance, have come under my observation. They present so many points of interest and importance that I have ventured to ask renewed attention to an extension of the same subject. In no department of surgery are more problems yet unsolved, and in no department are the results of careful study likely to be of more absorbing interest or of greater professional value.

Attention has been largely directed to cerebral localization, and to certain surgical procedures founded upon the indications it has afforded. Such operations upon the brain have been conspicuously successful, and have been justly reckoned among the triumphs of modern surgery. When guided by the disclosures of physiological experiment and aided by the application of recognized aseptic laws, operations upon the brain have been devised and successfully executed which in the immediate past would have been not only impossible but incredible. It is equally true that these operations are still limited in number and application. The instances in which brain lesions can be accurately defined and located and afterward made subject of operation with reasonable prospect of success are comparatively infrequent. The lesions which are of such nature, so well defined in outline, or so situated, in view of demonstrated localization of brain function, that their diagnosis can be made with reasonable certainty, are few enough in the first instance; those which are within reach of the surgeon's knife are fewer still; and those in which the patient ultimately survives constitute but a small proportion of the originally scanty number. It is not strange, however, that operations which invade the very penetralia of the human organism should fascinate by their audacity, and that, when successful, they should dazzle the modest workers in more prosaic fields of labor. It is also possible that the ardor with which the diagnosis and relief of local lesions of the brain have been pursued, in the light of functional localization, may tend to distract attention from those general pathological conditions which are of so much greater frequency. The study of cerebral topography, moreover, has been so much more effectively prosecuted by the physiologist than by the pathologist, that perhaps the results of clinical and

pathological work have been practically if not theoretically underrated. It is certainly proper at the present time to more generously supplement physiological experimentation by both ante-mortem and post-mortem observations made upon the human subject. For this purpose, cerebral traumatism, which this series of cases illustrates, affords peculiar advantages, since death results from the establishment of lesions in a previously healthy brain, and since it presents itself with sufficient frequency for purposes of comparison.

The cases which I propose to subject to analysis are one hundred and twenty-four in number, and, with two or three exceptions, have been previously unreported. They have occurred mainly in my service in two hospitals, and in the last two years. They include all cases of injuries of the head which I have seen during the time specified, and if they are preponderantly of one character, they are probably still representative of the whole class to which they belong. Wounds of the scalp have not been included because they are not only surgically insignificant, but have no necessary relation to the deeper-seated injuries which it is proposed to consider. In a previous paper upon a subject of an entirely different character, I found it convenient to abstract the histories of the several cases upon which it was based. I pursue the same course in the present instance in order to afford a means of verification of such conclusions and generalizations as I may establish, and at the same time to make record of a large amount of material which may be of service hereafter to students of the same class of injuries. I shall not attempt a reading of these histories, but shall leave them to appear in the archives of the association for future consultation. They are arranged in accordance with the nature and result of the primary injury.

#### FRACTURES AT THE BASE.

CASE I.—Male, aged forty-five; fell in the street; admitted to alcoholic ward; wild delirium, requiring mechanical restraint; hemorrhage from left ear; wound in posterior parietal region; high temperature; coma; death in forty-eight hours.

*Necropsy.*—Fracture at the base, with complete separation of the left temporal bone into its constituent parts—squamous, petrous, and mastoid. Slight laceration of left parietal lobe at a point corresponding to seat of external injury. At a corresponding point upon opposite parietal lobe there was extensive laceration 3.5 inches  $\times$  1.5 inch in diameter.

CASE II.—Male, aged forty; said to have fallen from his truck; no superficial injury; delirium, which was considered alcoholic; refused treatment; delirium continued next day, and he committed suicide by drowning.

*Necropsy.*—Fracture at base extending from left parietal eminence to foramen magnum. Superficial laceration of right temporal-sphenoidal lobe by *contrecoup*.

These two cases have been previously reported.

CASE III.—Male, aged fifty; fell from steps to sidewalk; scalp wound in right posterior superior parietal region; hemorrhage from right ear, and later from right nostril; coma; stertor; rigidity of all the limbs; left pupil dilated. In twelve hours complete left hemiplegia supervened, and hemorrhage from right ear renewed. Stertor and rigidity disappeared, and left pupil became normal. Unconsciousness and incontinence

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of urine continued from time of admission till death from asphyxia at the end of six days.

*Neurosy.*—Fracture at base, beginning at point of injury and extending through right petrous portion and middle fossa to apex of opposite petrous. Lacerations of left frontal and right temporo-sphenoidal lobes inferiorly and laterally. Thick clot over left frontal and temporal lobes laterally, growing thinner as it extended toward base and vertex. Whole brain intensely hyperæmic.

**CASE IV.**—Male, aged twenty-two; cause of injury unknown; compound depressed fracture external to right parietal eminence; semi-comatose, irrational, articulation indistinct; respiration continued slow and irregular for three days. The depression was found on trephination to be of the external table only. Two days after admission, complete paralysis of extensors of right hand, paresis of right arm, and right facial paralysis, involving both mouth and eyelid. All these paralyses afterward varied in degree from time to time, and the mental condition varied from rationality to noisy delirium. He was usually restless, and became unconscious for two days before death. Temperature on admission,  $101^{\circ}$ , and remained above  $100^{\circ}$  for a week. Then declined to  $99^{\circ}+$  during another week. Two days before death it rose steadily from  $103^{\circ}$  to  $109^{\circ}$ . Died in forty-five days.

*Neurosy.*—Fissure extending from point of depression into right middle fossa. Subacute arachnitis and excessive cerebral hyperæmia; surface of brain at point of fracture unchanged, but beneath it was a large cavity containing reddish semi-fluid material, and brown detritus from subcortical laceration.

**CASE V.**—Male, aged thirty-five; cause of injury unknown; scalp wound over occipital protuberance; patient under influence of drink; would not answer questions; grew stupid, and in three hours became unconscious; mechanical restraint necessary. Temperature soon after admission was  $102^{\circ}$ , and in ten hours became  $105^{\circ}$ , receded to  $101.8^{\circ}$ , and then rose steadily to  $106.6^{\circ}$ . He died twenty-nine hours after admission.

*Neurosy.*—Hæmatoma covered whole calvarium. No fracture of vertex, but a slight fissure existed along the posterior border of the right petrous portion of temporal bone from *contrecoup*. Thin coagulum and fluid blood covered upper surface of both cerebra (meningeal contusion). Lacerations of under surface of left frontal (large) and temporo-sphenoidal, of inner border of right frontal, and of under surface of right temporo-sphenoidal lobes. The last was as large as a hickory nut.

**CASE VI.**—Male, aged thirty-eight; knocked down by a blow upon the head from a club; scalp wound in right parietal region. He was stupid, and could not answer questions coherently. Left pupil slightly dilated and eyes directed slightly to the right. Next day incoherent, delirious, and had delusions and muscular tremor, pupils irregular, pulse frequent and intermittent. Temperature on admission  $103^{\circ}$ , five hours later  $102^{\circ}$ , rose to  $106.2^{\circ}$ . Died in twenty-four hours.

*Neurosy.*—Linear fracture through whole length of right parietal, right occipital, and petrous portion of temporal bone into middle fossa. Considerable laceration of under surface of left frontal and temporo-sphenoidal lobes.

**CASE VII.**—Male, aged forty-five; fell upon the sidewalk, striking the back of the head. Admitted after twenty-four hours. (Edema under and about an old cicatrix behind the right ear, and underneath this an extensive comminuted fracture. Two pieces of bone were removed and one elevated, and a large, firm epidural clot extracted as far as possible. The patient was in a condition of stupor; pupils irregularly dilated; articulation difficult; muscles generally rigid; gait ataxic when he attempted to walk; sensibility diminished; and urine incontinent. His condition improved for four days after operation;

temperature decreased, mental condition became clearer, and muscular rigidity lessened. There was copious serous discharge from the right ear, followed by right facial paralysis. On the fifth day temperature rose from normal, muscular rigidity again increased, and he again became stupid. The next day he became unconscious, and in an hour's time he had eighteen general convulsions, and died the following morning. His temperature did not exceed  $99.8^{\circ}$  till the fifth day. On the morning of his death it was  $105^{\circ}$ .

*Neurosy.*—Fracture at the base. The whole central portion of the occipital, from the foramen magnum upward, and posterior portion of both parietal and right temporal bones, forming an irregular circle two inches and a half to three inches in diameter, were broken into large fragments, two of which had been removed during life. The mastoid and outer part of the petrous portion of the right temporal bone could be removed by the fingers with the use of very little force. This line of fracture ran through the tympanic cavity, so that, after removal of the outer fragment, the carotid canal and aqueductum Fallopii could be seen in the section filled with coagula. A large epidural clot was situated beneath the occipital fracture, extending half an inch beyond its margin. A large subdural clot filled the right inferior occipital fossa, extending to the foramen magnum. The cavity of the posterior part of the great longitudinal sinus was occupied by a thrombus, and its walls were infiltrated with blood. There was a large, partially decomposed thrombus in the torcular Herophili, extending through the right lateral into the petrosal sinus and internal jugular vein. The whole internal surface of the dura beneath the seat of the external hæmorrhage was lined by a firmly coagulated clot, with an inflammatory exudation around it. A portion of the surface of the right occipital lobe posteriorly was softened, showed minute hæmorrhages, and was torn away in the removal of the dura. The meshes of the pia mater over a large part of the parietal and occipital lobes posteriorly were distended with slightly turbid serum. There was a small laceration on the under surface of each frontal lobe, and a larger one, three quarters of an inch in diameter, existed in the right cerebellum at a point corresponding to the site of the thickest part of the subdural hæmorrhage.

**CASE VIII.**—Male, aged seventy-six; cause of injury unknown; admitted to alcoholic ward, and transferred to surgical service same day. Patient unconscious from the time he was found in the street. Stertor; muscles rigid on both sides; both pupils very strongly contracted, the left one the more so. Scalp oedematous in right parietal region. Fissure, extending from posterior and inferior part of right parietal into occipital bone, discovered by incision. There was no change in the general symptoms up to the time of death, two days and six hours after admission. The left pupil continued to be the more strongly contracted, and muscular rigidity continued to be more strongly marked on the right side. Consciousness was not regained. Temperature on admission,  $100.4^{\circ}$ ; rose steadily to  $103.8^{\circ}$ ; post mortem,  $102^{\circ}$ .

*Neurosy.*—Fracture at base extended to right jugular foramen, and then turned backward to foramen magnum. Slight epidural and considerable subdural hæmorrhage at point where fracture began. Slight serous effusion into pia. Thrombus in torcular Herophili, extending into right occipital sinus and through petrosal sinus into jugular vein. The whole inferior surface of the brain covered with blood. Superficial laceration along the anterior border of left temporo-sphenoidal lobe from median line outward. Large clot could be seen bulging outward, behind a thin cortical layer, along the whole length of external border of left frontal lobe. Well-marked lacerations upon anterior border of both frontal lobes, and also upon their



inferior surfaces along the longitudinal fissure. Optic chiasm surrounded by a clot, which extended backward as far as anterior border of the pons Varolii. Upon section along external border of left frontal lobe, a clot of great size was disclosed, which occupied almost the whole substance of the left frontal and temporo-sphenoidal lobes, from the third frontal convolution backward. This hæmorrhage had broken through into the lateral ventricles and thence into the occipital lobes, which were also filled with great pools of fluid blood.

CASE IX.—Male, aged forty; fell into the hold of a vessel; semi-conscious when found; hæmorrhage from both nostrils and from right ear; regained consciousness next day; four days later delirious and irritable; back of neck rigid; abdomen retracted; death at end of five days. Cheyne-Stokes respiration supervened. Temperature for seventy-two hours, 99° 2' to 99° 8'; fourth day, 103° 2'; fifth day, 104° 8'.

*Necropsy.*—Contusion over right mastoid revealed on raising the scalp. Fracture at base in three fissures; extending from this point, two (fine) across petrous portion, and a third connecting them posteriorly across occipital bone. Deep linear laceration, extending across inferior surface of right cerebellum, near outer border. Subdural hæmorrhage over whole left cerebrum, superiorly and laterally; most copious in middle lateral region. Laceration of antero-inferior border of left frontal lobe. White substance of left cerebrum much congested, and with punctate extravasations throughout its extent.

CASE X.—Female, aged eight; fell two stories; partially unconscious; left hemiplegia, and hæmorrhage from left nostril; depressed fracture over left frontal eminence. Patient became irritable, and the bone was elevated an hour later. Died within twenty-four hours.

*Necropsy.*—Coronal suture separated on the right side. A fissure extended through right parietal eminence and another through frontal bone. Base fractured across body of sphenoid into left middle fossa. Other fissures through right middle and anterior fossæ, external to orbital plate. Epidural hæmorrhage on left side anteriorly and in temporal region. Lacerations in right frontal lobe and in right fissure of Rolando and in left temporo-sphenoidal lobe.

CASE XI.—Male, aged twenty-nine; fell fifteen feet into the hold of a vessel and struck on his head. Coma, stertor; left pupil markedly dilated and right pupil contracted; paraplegia, hæmorrhage from left ear and nose and under left conjunctiva, and contusion over left eye. Died in five minutes after admission.

*Necropsy.*—Epidural hæmorrhage, blood still fluid. Fracture extending downward and forward from behind left parietal eminence, across petrous portion, through middle fossa, transversely across anterior fossa, and terminating at inner extremity of lesser wing of right sphenoid. Slight cortical hæmorrhage on left side, and slight lacerations of under surface of left frontal and temporo-sphenoidal lobes.

CASE XII.—Female, aged twenty-three; jumped from fifth-story window. Contusions of left hip and shoulder and over right parietal eminence; slight hæmorrhage from nose and left ear; temperature, 99° 4'; incontinence of urine and feces; right hemiplegia. Death in two days.

*Necropsy.*—Fracture extending from right parietal eminence to foramen magnum, of right petrous portion entire length, and of left petrous for two inches; laceration of left parietal lobe beneath parietal eminence.

CASE XIII.—Male, aged forty-six; fell five stories. Coma, stertor, pupils normal; pulse and respiration normal. Death in five days.

*Necropsy.*—Contusion over right parietal eminence; fracture extending from this point downward and forward, anterior

to petrous portion, and through sella turcica; subarachnoid hæmorrhage over both hemispheres; laceration of under surface of left temporo-sphenoidal lobe.

CASE XIV.—Male, aged fifty; knocked down by a blow in the face and fell upon the back of his head. Patient became unconscious, but shortly afterward walked to the hospital; contusion over right parietal eminence; dazed; no other symptoms; walked home; had severe pain in the head for three hours after the injury, then became gradually unconscious till four hours later, when coma was complete and death occurred at the end of another hour.

*Necropsy.*—Wound of lip and contusion of forehead; fissure of external table, very fine, beginning in right inferior occipital fossa and running across right petrous portion; slight epidural hæmorrhage about the middle of the fracture; upon left side, large subdural extravasation upon lateral border of parietal and frontal lobes, extending upward and also downward into middle fossa; also some extravasation into pia and several slight contusions of brain substance; skull thin, and angles and processes upon its inner surface unusually sharp and prominent.

CASE XV.—Male, aged forty; cause of injury unknown. Coma; respiration slow and full; right pupil dilated, left contracted; reflexes lost; had been seen to move the left side; pulse became slower and breathing more labored. Died in nine hours and a half.

*Necropsy.*—Contusion in left parietal region; fracture from this point extending by two fissures into anterior and middle fossæ; large epidural hæmorrhage from rupture of left middle meningeal artery; slight laceration of left parietal lobe at point where fracture began, and another upon lateral border of right temporo-sphenoidal lobe.

CASE XVI.—Male, aged fifty-five; fell upon the street. Unconscious; respiration labored; left pupil slightly dilated; slight hæmorrhage from left ear; slight rigidity of left side. He was still stupid upon admission, but could give his name. Temperature, 99°. Dilatation of left pupil and rigidity of left side increased, and afterward there was complete paralysis of left lower extremity, while left arm remained slightly rigid; left hemiplegia was finally complete. He died in twenty-one hours. Temperature, 101° 2'.

*Necropsy.*—Contusion of scalp over left occipito-parietal suture; skull thin; stellate fracture, originating about the center of left parietal bone; fissures extending upward, across base of occipital and along the upper border of petrous portion of temporal bone into the middle fossa; subdural hæmorrhage covered right hemisphere; under and lateral surfaces of right temporo-sphenoidal lobe extensively lacerated; under surface of both frontal lobes lacerated along the median fissure; these lacerations were recent; upon the under surface of the left temporo-sphenoidal lobe there was a deep laceration, irregular in outline, but about an inch in its several diameters; there were also small and deep lacerations upon its anterior border and upon the under surface of the left frontal lobe. All these lacerations upon the left side extended through the cortex, contained no recent clot, but were covered with a grayish-yellow viscid substance, and were bounded by a considerable area of yellow softening. They evidently antedated the final and fatal injury. Section of the brain disclosed marked hyperæmia.

CASE XVII.—Male, aged fifty; cause of injury unknown. Unconscious; pulse, 66; respiration full and slow; right pupil dilated, the left contracted, neither one responding to light; he had been seen to move the left side of the body; stertor supervened and death occurred in eleven hours.

*Necropsy.*—Contusion of left parietal region disclosed by incision; two fissures originated from this point, one extending into the anterior and the other into the posterior fossa; large

epidural clot from rupture of left middle meningeal artery; general contusion; hyperaemia.

CASE XVIII.—Male, aged thirteen; fell two stories. Haemorrhage from right ear; unconscious; irritable when disturbed; consciousness regained in thirty minutes; pulse 78, intermittent; temperature, 98°; depressed fractures below right temporal ridge; elevated next day; three fissures, one backward, one forward, and one downward; dura incised; only subarachnoid haemorrhage; temperature, 101.8°. Next day patient irritable and somnolent; urine incontinent; temperature slightly increased (102°). On second day after operation he was delirious, and temperature rose steadily till evening, when it was 105.4°. On the third day the skin was hot and he was very restless and sensitive to external impressions; his pupils were moderately dilated and reacted slowly. From this time he was in deep coma; temperature varied from 104°+ in the morning to 105°+ in the evening till death on the evening of the seventh day, when it was 106.5°.

*Necropsy*.—Skull thin. No pus in the wound or in the small brain cavity which had been disclosed by the ante-mortem operation when the depressed bone was elevated. Subdural haemorrhage in the opposite (left) occipito-parietal region. An effusion of thick green pus beneath the arachnoid covered the lateral and superior surfaces of the right occipital and parietal lobes, but did not extend forward to within an inch of the cranial opening left by the ante-mortem operation. A subdural effusion of similar thick green pus was coextensive with the whole right inferior occipital fossa. There was a deep laceration, an inch in diameter, upon the lateral border of the left temporo-sphenoidal lobe, which involved the subcortical tissue. At a point directly beneath the opening left by the removal of the depressed bone there was a cavity in the brain substance as large as a hickory nut which opened by its whole extent upon the cerebral surface. (As this surface was intact at time of operation, the cavity must be ascribed to a direct contusion, subcortical, not involving superficial laceration, and to a subsequent giving way of the cerebral cortex under the influence of arterial pulsation, and in the absence of normal repressive force exerted by the skull and dura.) The whole brain substance and meningeal vessels were intensely hyperaemic, and there were numerous minute extravasations from general contusion. There was no meningeal or ventricular serous effusion. A fissure extended from the central point of fracture through the petrous portion of the temporal and inferior occipital fossa to the foramen magnum.

CASE XIX.—Male, aged nineteen; fell three stories through a hatchway; unconscious; irritable when disturbed; pulse, 80; temperature, 100°; profuse haemorrhage from left ear, which continued twenty-four hours, and was then followed by serous discharge. At the end of twenty-four hours patient was still unconscious, pupils were largely dilated and movable, and he had general convulsive movements, most marked in the right leg. During the second day coma was more profound and general convulsive movements ceased, but he had one prolonged general convulsion, which was repeated on the third day, the movements being most violent on the left side. The left pupil continued from the first day to be more contracted than the right. Died in three days and six hours. Temperature continued to rise from time of admission, and reached 107.2°.

*Necropsy*.—Large haematoma in substance of left temporal muscle. Fracture extended from left squamous portion of temporal bone into middle fossa, and by a wide fissure along the anterior border of the petrous portion to the sella turcica. Large epidural and subdural clots in left middle fossa. Right cerebrum covered by a thin subdural coagulum. In the left middle fossa diffuent brain substance clung to the dura as it

was removed. Large and deep laceration of the lateral border of the left temporo-sphenoidal lobe and of the lateral border and contiguous inferior surface of the right temporo-sphenoidal lobe. Small and deep laceration at junction of right parietal and occipital lobes. All these lacerations extended into the subcortical tissue.

CASE XX.—Male, aged sixty-two; cause of injury unknown; found unconscious in an ice wagon with his head lying on a cake of ice. Contusion of left parietal region, and both eyes much ecchymosed. Subconjunctival haemorrhage at outer part of left eye. Muttered incoherently when disturbed. Slight temporary rigidity of right arm. Restless and irritable all day, and roused sufficiently in the evening to give a name and address, both of which proved to be incorrect. Condition underwent little change till death—at the end of seven days and seven hours. Temperature high on admission—101°; in forty-eight hours, 104.6° to 104.8°; seventy-eight hours later it receded to 101.2°; in forty eight hours more it varied from 101° to 102°+, and then rose steadily to 107°+ at the time of death.

*Necropsy*.—Skull thin; fracture of left anterior and middle fossae, apparently beginning with a comminution of orbital plate of left frontal bone about its center. At this point two or three small fragments were displaced upward with fine fissures running off in different directions. One fissure ran outward and upward into left squamous portion of temporal bone; another ran backward from the crista galli through the bodies of the ethmoid and sphenoid, through the optic foramen and along the anterior border of the petrous portion; and the third ran through the right optic foramen into the squamous portion of the right temporal. The optic nerves were uninjured. There was a little blood extravasated over right occipital and lower part of right parietal lobes. The left frontal lobe was completely excavated by a laceration, which was bounded everywhere by a thin layer of unaltered cortex, except inferiorly, near the anterior border, where it was covered in only by the meninges. It was separated from the ventricle by a thin septum of brain substance. This cavity contained commingled blood, clot, and brain detritus. There was also a laceration of the anterior two thirds of the external lateral border of the right cerebellum, and an extravasation the size of a robin-shot existed in the center of the right corpus striatum. There was no clot anywhere at the base of the brain and no further lesions.

CASE XXI.—Male, aged twenty-seven; fell seventeen feet into the hold of a vessel, striking his face and stomach. Thirty minutes later an officer found him lying upon the dock unconscious and bleeding from the mouth and nose. In the interval which had elapsed he was said to have been excited and abusive. He was seen upon the dock and twice afterward during the night at the station-house by ambulance surgeons, who refused to take him to a hospital, because, in their opinion, he was simply drunk and in no want of surgical treatment. The next morning he was taken to court by two policemen. He was then conscious, and, in their inexperienced opinion, rational. He was unable to stand or walk, and was carried between them on their arms into a street-car and into court. He was duly sentenced for intoxication, but by an inspiration of somebody he was halted on his way to the Island and placed in the alcoholic ward at Bellevue. A little later he was transferred to a surgical ward. At that time he was weak, his pulse slow, and respiration labored. There was much ecchymosis of the eyes, and the lids could be separated only with great difficulty. There was subconjunctival haemorrhage of both eyes, and the arms were rigid, more especially the right. Pupils normal. The patient soon grew restless, and had muttering delirium, incontinence of urine, and Cheyne-Stokes respiration. Temperature, 104.8°. Depressed fracture easily felt in right frontal bone.

The same afternoon he was trephined, and the fracture found to be stellate, with a depression an inch by half an inch in diameter. The inner table was driven through the dura. Pulse and respiration temporarily improved, but he grew weaker, and died eight hours after admission to the ward. Temperature, 106°.

\* *Necropsy*.—I am indebted to the report of Dr. W. S. Jenkins, late of the coroner's office. There was a linear fracture in the temporal bone three inches long, extending upward and backward from the anterior margin. There was a stellate fracture in the frontal bone to the right of the median line and an inch above the superciliary ridge. On the inner surface of the skull the fracture extended across both orbital plates, through the ethmoid and body of the sphenoid bone, and on both sides through the anterior fossa and through the left middle fossa nearly to the petrous portion of the temporal bone. The nasal bones were also fractured. These fractures were nearly all comminuted. There was no considerable hæmorrhage in the cranial cavity. The upper surfaces of both hemispheres were lacerated, especially at seat of fracture.

CASE XXII.—Male, aged thirty-nine; fell from mizzen-top to deck, and struck upon right temporal region: admitted half an hour later; unconscious, and bleeding from right ear; stertorous breathing; pulse full and bounding; lacerated wound in right parietal region. He had pulmonary œdema, for which he had already been bled from the arm by the ship's surgeon. Died in two hours.

*Necropsy*.—Hæmatoma over whole right side of the head. Multiple fissures of the base (six in number), involving both sides and all the fosse. The primary fissure, of five which were connected, began as a wide fissure behind and a little to the left of the foramen magnum, and narrowed to a hair's breadth as it ran forward to the right superciliary ridge. A sixth and entirely independent fissure ran backward from the crista galli on the left side through the optic foramen to the sella turcica. There were slight lacerations of under surface of both frontal and right temporo-sphenoidal lobes, which occasioned slight subdural hæmorrhage. Upon the upper and lateral surfaces of the hemispheres, especially the left, and at the base, an epidural hæmorrhage of larger size existed in the inferior occipital fossæ, and pressed upon the pons and medulla.

CASE XXIII.—Male, aged forty; found at foot of cellar stairs, unconscious and restless, with a large lacerated scalp wound, which had bled freely, and several wounds of the face. Admitted to the alcoholic ward on the diagnosis of ambulance surgeon of another hospital, still unconscious. The scalp wound was in the parieto-occipital region, to right of median line, and the most extensive face wound was over the right malar bone. As he did not "clear up," he was transferred to a surgical ward four days afterward. He was then nearly comatose, quiet unless disturbed, his pupils normal, and respiration slow and regular. Temperature, 102·2°; pulse, 96. Temperature next day was 104·6°, 103·6°, and 106°; and on the morning after it was 105° and 107°, when he died without further symptoms five days and a half after reception of injury.

*Necropsy*.—Fracture at base, through petrous portion of left temporal bone, extending to foramen magnum. Laceration of left temporal and frontal lobes, with cortical hæmorrhage.

CASE XXIV.—Female, aged thirty-eight; balutical criminal; jumped from the third tier of the Tombs Prison to the flagging below, thirty feet or more; punctured wound in left occipito-parietal region; unconscious; hæmorrhage from left ear; pupils moderately dilated, more especially the left; and vomiting persistent. Temperature, 98·9°. The next morning the patient was conscious, rational, and the hæmorrhage had nearly ceased. In the evening she was slightly delirious, and the following day required mechanical restraint till quieted by sedatives. Both

pupils became widely dilated, the left still continuing more dilated than the right, and they were only slightly responsive to strong artificial light. This ocular condition continued till her death. The abdomen was painful and swollen. Her mind remained clear, but apathetic, till the sixth day, when she fell into a stupor. On the same day all the extremities became paretic and partially anæsthetic. Up to this time the muscular power had been normal. The paresis and anæsthesia were most marked on the right side. The pulse was rapid, quick, and feeble. A day later the left foot and right hand were less paretic, and her mind was clear, but the senses blunted. She answered questions slowly and after an interval, and complained of pain in the head. On the eighth day she was restless and irritable, and had some right facial paralysis, while power in the left foot and right hand was still further improved. The ninth day she was delirious and unconscious. On the eleventh day she no longer moved or spoke, and paid no attention to an explorative incision. On the fifteenth day she died from asthenia. The temperature remained below 100° till the close of the fourth day, when it rose to 103°. After that it varied from 100° to 102°+; usually was 101°+ till the twelfth day, when it rose to 104°, and was from 103° to 104·5° till she died.

*Necropsy*.—Head large and unsymmetrical, and skull thick. No lesion of the scalp or of the bone before removing the calvarium. The occiput was disproportionately large, and the right occipital fossæ were much larger than the left. The left middle and anterior fossæ were rather larger than the right. A fissure began at a point in the squamous portion of the left temporal bone, beneath the external wound, and, passing through the anterior surface of the petrous portion, terminated in the optic foramen. This fissure was not open, but the fragments were quite movable. There was no epidural hæmorrhage, but pressure was made upon the facial nerve by interosseous hæmorrhage as a result of the fracture. There was no meningitis, and scarcely the usual amount of serum in the meshes of the pia. There were slight lacerations upon the under surface of the right temporo-sphenoidal lobe, and one somewhat larger upon its external border, from which a moderate amount of blood had spread upward over the occipital lobe, barely reaching the parietal. Upon section, the cerebral vessels were found to be distended with blood, which flowed from the puncta vasculosa. The veins could be seen in congeries and filled with coagula. The brain substance was softened and œdematous, so that the serum followed the knife. The ventricles were distended with serum. Subsequent microscopic examination of the brain tissue in the recent state disclosed no inflammatory changes. There was a considerable extravasation of blood behind the peritonæum on the right side, but no injury of the viscera. There were no serous effusions in the cavities of the body, and no chronic visceral lesions.

CASE XXV.—Male, aged thirty-seven. Cause of injury unknown; scalp wound in right posterior temporal region; hæmorrhage from right ear; mental condition stupid, but consciousness retained; incontinence of urine and feces. The patient had been drinking to excess. On the next day he had active delirium, with tremulous muscles and delusions and intervals of semi-unconsciousness. On the sixth day there was general muscular rigidity, stertor, and muttering delirium. The right pupil was slightly contracted, with slight serous discharge from right ear and slight right facial paralysis. Unconsciousness followed. On the eighth day there were two slight convulsions involving both arms, the face, and eyes. The face was drawn to the right and the eyes turned upward. Paralysis of right arm and face succeeded, and a little later the surface temperature of the left side was found to be 102°, while that of the right side was normal. Rectal temperature, 105·6°, which soon declined to



104°-8°. Death two hours later. Post-mortem temperature, 106°. The temperature varied from 100° to 102° till fourth day, then from 103° to 104° to last day, when it was as noted above.

*Necropsy.*—Fissure across petrous portion of right temporal bone. Large subarachnoid serous effusion. Thin cortical layer of blood covering whole of parietal and occipital lobes on both sides of the brain. Meningeal vessels congested. Brain structure everywhere oedematous. Minute vessels filled with coagula. Fluid blood in anterior cornu of left lateral ventricle. Laceration of upper and outer surface of right frontal lobe, and upon upper and outer surface and posterior border of left occipital lobe. A third laceration existed at the base of the brain upon either side of the median fissure of the cerebellum. Neither of these lacerations was larger than a walnut, and neither involved a rupture of the meninges, though they all reached the surface of the brain.

*CASE XXVI.*—Male, aged twenty-three, thrown from a wagon. The ambulance surgeon found him dizzy and feeling ill. He had no other symptoms except a scalp wound in right temporal region. After admission to hospital he was entirely conscious and dictated a letter. There was hæmorrhage from right ear and nostril. Temperature, 100°. No other symptoms. Soon afterward he vomited blood copiously and became unconscious with stertor, and died in four hours from time of admission.

*Necropsy.*—Depressed fracture of right frontal bone an inch from median line and just anterior to coronal suture, triangular in form with apex extending to superciliary ridge. One fissure, originating in this depression, ran through right orbital plate, and greater and lesser wings of sphenoid, into middle fossa; another one ran through squamous into petrous portion of temporal bone, terminating upon its anterior surface. There was an epidural clot extending over lateral aspect of right frontal lobe into the middle fossa. This portion of the frontal lobe was much flattened and compressed. There was no subdural hæmorrhage and no superficial laceration of the brain. There was a small effusion of blood in the meshes of the pia on either side of the medulla, behind the pons, parallel to the anterior columns. The whole brain was hyperæmic with a multitude of punctate extravasations, and the minute vessels were filled with coagula. Upon section, a number of extravasations were found in the substance of the pons, mainly in the transverse fibers, but some in the longitudinal fibers of the crura. The smaller ones were of the size of a robin-shot. The largest one was half an inch long by a quarter of an inch wide, and was just below the surface on the right external border of its inferior surface.

*CASE XXVII.*—Male, aged thirty; cause of injury unknown; unconscious; coma continued till death; hæmatoma of scalp at vertex; ecchymosis at base, right side; slight hæmorrhage from right nostril; stertor; pulse, 130, irregular and weak; temperature, 94°; rose to 102° some hours later; both eyes protruded and both pupils were dilated, left pupil most markedly so; some rigidity of right side; died same day in eight to ten hours after admission into the hospital.

*Necropsy.*—Fracture through petrous portion of right temporal into the occipital bone and into middle fossa. No fracture of vertex. Epidural clot in right inferior occipital fossa. Thin subdural clot over both frontal lobes, especially over left, extending nearly to fissure of Rolando. Small laceration of left frontal lobe on its under surface near anterior border.

*CASE XXVIII.*—Female, aged forty-five, fell ten feet upon her head; scalp wound in right parietal region; temperature, 98°-8°. Twenty minutes after admission left lower extremity became paretic, patellar reflexes lost. Three days later tem-

perature suddenly rose from 99° to 102°. Next day patient became delirious. Evening temperature, 105°-2; following morning, 106°. Death five days after reception of the injury.

*Necropsy.*—Fracture beginning in squamous portion of right temporal bone, extended through both anterior fossæ, involving greater wing of right sphenoid and both orbital plates. Subdural clot, the size of a pigeon's egg, occupied the left middle fossa. Laceration of inferior surface of left temporo-sphenoidal lobe.

*CASE XXIX.*—Female, aged sixty-six; found unconscious at foot of cellar stairs; supposed to have been thrown down. Scalp wound in left inferior temporal region; left malar bone fractured and left side of face much contused; coma, stertor, and frothing at the mouth; moist bronchial râles; right pupil dilated, left pupil invisible from ecchymosis; right upper extremity anæsthetic and soon became paralyzed; temperature, 101°-6°. Three hours later the patient was apparently moribund. On the following day she was conscious and rational and the paralysis and anæsthesia had disappeared; the pupils were normal; urine incontinent; temperature, 99°+. For a week's time her condition remained practically unchanged, except that her temperature gradually rose to 103° and in the last three days gradually fell to 100°, and that the subconjunctival hæmorrhage increased. Her mental condition was apathetic, and she could be rarely induced to make a monosyllabic answer to a question asked. On the eighth day she suddenly became unconscious. Her temperature rose to 104°-8° and within two hours fell to 102°-8°. She became weaker and died during the ninth day, her temperature having again risen to 106°. Ten minutes post mortem it was 105°-2°.

*Necropsy.*—An open fissure extended through both tables of the bone from a little above and to the left of the external occipital tubercle to the left foramen lacerum posterius. There was moderate subarachnoid serous effusion. There was an apparent laceration on the median aspect of the left frontal lobe, the real character of which only became obvious upon further examination. The interior of both frontal lobes was disorganized and destroyed, having been broken down by subcortical laceration. On the left side the clot was very solid, and the external layers of fibrin on its inferior aspect were partially decolorized. It had broken through into the anterior part of the lateral ventricle and also through the cortex on the median surface, involving for a space of half an inch the motor arm area and the sensorial center below it in the gyrus fornicatus. It was this which at first sight seemed to be an independent lesion. The clot in the right frontal lobe, which was of equal size, had nowhere broken through the cortex or into the lateral ventricle. There was no cortical hæmorrhage, although there was a deep laceration on the posterior border of the left cerebellum. The interior of the brain generally was softened and reddened in patches.

*CASE XXX.*—Female, aged fifty; no history; admitted as case of apoplexy. Small lacerated scalp wound in left posterior parietal region; slight hæmorrhage from both nostrils; patient unconscious; movements sluggish; left pupil dilated, right contracted; incontinence of urine and fæces; face flushed; visible pulsations of carotids; fine linear fracture running toward the base discovered by incision; temperature, 101°; at night, 101°-8°; next day, 101°-2° to 101°; then rose steadily to 106°-8° on the next day, when death ensued, three days and a half after admission, without consciousness having at any time been regained. Post-mortem temperature, 109°. On the last day of life sensitiveness of the corneæ was markedly diminished and sensation was evidently blunted all over the body.

*Necropsy.*—A fissure extended from left of occipital protuberance through posterior fossa and petrous bone to foramen ovale,

There was a large, firm subdural clot, three fluidounces by measurement, in the anterior fossæ, and a slight subdural hæmorrhage into right posterior fossa around the foramen magnum. A deep laceration extending below the cortex, on the under surface of the left cerebellum, made an excavation three quarters of an inch broad from the posterior nearly to the anterior border. Another extensive laceration deeply excavated the inferior portion of the right frontal and extended into the external border of the right temporo-sphenoidal lobe. Hæmorrhage from the latter laceration reached the vertex anteriorly and filled the fissure of Sylvius. Another laceration existed in the middle portion of the gyrus fornicatus, filled with brain detritus and coagulum, and extended through the cortex. This was oval in form and half an inch in diameter. There was some general contusion of both hemispheres, most marked in posterior portions.

CASE XXXI.—Male, aged forty-five; thrown from a horse and struck upon his head. He was temporarily unconscious, but on the arrival of the ambulance was able to stand, and said he felt very well. He again became unconscious on his way to the hospital. His pupils were contracted and his pulse barely perceptible. He suddenly became cyanotic and died twenty-five minutes later.

*Necropsy.*—Hæmatoma of scalp in left occipital region; blood fluid; stellate fracture of calvarium with center in left upper occipital region, and with fissures extending downward into foramen magnum, forward into middle fossa, and upward and laterally; epidural clot in occipital region; subdural hæmorrhage in inferior occipital fossa compressing the medulla; extensive subarachnoid hæmorrhage over temporo-sphenoidal and frontal lobes on both sides, with laceration of inferior surface of right frontal and temporo-sphenoidal lobes, and in slighter degree of same region on the left side.

CASE XXXII.—Male, aged thirty-four; struck by a brick falling from the fourth story. Compound, comminuted, depressed fracture of the right parietal bone extending into the base; hæmorrhage from right ear; patient conscious and without general symptoms; temperature, 100.4°, and became normal; depressed bone elevated; no injury of dura. After twenty-three days subcortical abscess of brain developed, with left hemiplegia and anæsthesia. Dura incised and abscess evacuated. Died sixteen hours later. Temperature, 108°.

*Necropsy.*—Fissure through whole length of anterior surface of right petrous portion of temporal bone; no superficial cerebral laceration; subcortical abscess cavity of small size, which had been evacuated ante mortem through the angular gyrus. This case is fully reported in the *New York Medical Journal*, March 29, 1890.

CASE XXXIII.—Male, aged thirty-three; cause of injury unknown. Consciousness lost and never regained; scalp wound in left posterior parietal region; hæmorrhage from left ear; both pupils dilated, but the right contracted later; pulse, 60; muscles relaxed and later became rigid. Death in twelve hours. Temperature on admission, 99.6°; later, 98.6° to 100.4°; one hour post mortem, 101.2°.

*Necropsy.*—Semicircular fracture of squamous portion of left temporal bone, with fissure extending into anterior surface of petrous portion; deep, well-defined laceration, laterally and posteriorly, of left temporo-sphenoidal lobe, from which a thick clot extended over the occipital region; brain in all its parts excessively hyperæmic; on section, the surface was repeatedly bathed in blood as it was each time wiped away; no punctate extravasation or coagula in minute vessels.

CASE XXXIV.—Male, aged forty; said to have fallen down one flight of stairs. Scalp wound in right occipito-parietal region; hæmorrhage from the nose and later occurrence of hæma-

temesis; unconsciousness; stertor; pulse, 96 and full; respiration, 18; temperature, 100°; pupils normal till just before death, when they dilated; restlessness; incontinence of urine; temperature rose gradually to 102.6° one hour ante mortem. Died in fourteen hours.

*Necropsy.*—Linear fracture in right parietal bone and extending through middle fossa and greater wing of sphenoid; small epidural clot and larger subdural clot beneath the site of fracture; dura ruptured; cortical laceration an inch and a quarter by three quarters of an inch in anterior and inferior part of right parietal lobe; another laceration involved anterior half of middle temporal convolution on the same side. The whole brain very hyperæmic, most markedly so on left side posteriorly. In almost the exact center of the left cerebellum there was a laceration about the size of a pea filled with fluid blood.

CASE XXXV.—Male, aged forty; fell six stories. Abrasion about left eye; unconscious; pulse and respiration too rapid to be counted; temperature, 101°; both pupils strongly contracted; rigidity of both lower and the right upper extremities; temperature in articulo mortis, 100.4°; two hours post mortem, 99°+ and pupils dilated.

*Necropsy.*—No superficial injury upon any part of the body except the abrasion noted. An extravasation of blood existed below the scalp, covering the whole left parietal region. Separation of coronal suture, left side, from about its middle point, extending outward and terminating in a fissure which, in the middle fossa, divided into two lines, one lost in the greater wing of the sphenoid, the other at the petro-mastoid junction. No epidural or subdural hæmorrhages. Cortical hæmorrhages from meningeal contusion—one covering left frontal and parietal lobes superiorly and laterally, another covering right parietal and occipital lobes on either side of their junction. No laceration on the surface of the brain, or in any part, except one three eighths by one fourth of an inch in the left corpus striatum, subcortical, and at junction of middle and posterior thirds. Excessive general hyperæmia.

CASE XXXVI.—Male, aged sixty-five; fell into the hold of a vessel; hæmorrhage from the ears and into subconjunctival tissue; conscious for twenty-four hours; both pupils dilated; temperature high; died in forty-eight hours.

CASE XXXVII.—Male, aged sixty; knocked down by a truck; scalp wound in right posterior occipital region. A linear fracture running backward and downward was discovered by incision. Patient unconscious and restless. Pupils contracted; pulse, 66; very slight movements of right side of body; no facial paralysis; spoke only in monosyllables. In a short time right hemiplegia became complete, pulse weaker, temperature lower, and there was a slight general convulsion lasting about ten seconds. Four hours later, coma was profound, pupils small and irresponsive, pulse and respiration very irregular, and restlessness ceased. The patient was trephined over left motor area. The fissure was found to extend downward behind the mastoid. Epidural hæmorrhage disclosed, and, after incision of dura, subdural hæmorrhage. He died three hours later, and eleven hours after reception of injury.

CASE XXXVIII.—Male, aged forty; cause of injury unknown; contusions behind both ears; free hæmorrhage from right ear, and during the night from both ears and mouth; pupils contracted; pulse full and slow; breathing labored; temperature, 99.2°; became 105°. He did not regain consciousness, and died six hours after admission.

CASE XXXIX.—Male, aged twenty; fell thirteen feet; large hæmatoma in left posterior parietal region; unconscious; oozing from left ear and nose; pupils contracted, and eyes turned persistently to the right; mouth drawn slightly to the right; breathing irregular; vomiting free; extremities cold and muscles

relaxed; urine incontinent; temperature, 99.5°. Soon after admission hemorrhage from nose ceased, but continued from the ear. Patient could be roused partially but with difficulty, became restless, and moved his right side rather less freely than the left. Temperature, 101°. Two hours after admission breathing became stertorous, and tonic spasms, beginning in the right arm, became general. Two attacks of opisthotonos followed, and ceased after thirty minutes. Left pupil became the larger, while the right eye still turned to the right on exposure. Temperature, 105°; pulse, 96; respiration, 32, and of the Cheyne-Stokes variety. An hour later, coma was profound, with slow and stertorous respiration. Temperature, 106.6°. Respiration became insufficient, four to the minute, and face cyanotic. Death occurred in four hours. Pupils post mortem were widely dilated.

CASE XL.—Male, aged thirty; fell three stories to the pavement; four ribs fractured on the right side; contusion over right eye, and slight right subconjunctival hemorrhage; unconscious; skin cold and moist; pulse, 120; temperature, 100°. Pulse became weaker and respiration more labored, and death ensued in five hours and a half after reception of injury. No pulmonary symptoms.

CASE XLI.—Male, aged forty; cause of injury unknown; extensive contusion over right parietal region; hemorrhage from right ear and nose; unconscious; stertor; died in four hours and a half.

CASE XLII.—Female, aged forty-seven; fell on the street in a convulsion during a debauch; had other convulsions before admission; left side of head and eyelid much contused; mental condition stupid; pupils normal; breathing stertorous; pulse, 108; convulsions continued during the day and night; no interval of consciousness. During the morning a severe hemorrhage occurred from the mouth without previous warning. In the afternoon pulse and respiration became frequent. The blood which came from the mouth was bright in color, non-aerated, and said to be more than eight ounces in amount. The next day the convulsions were diminished in frequency and were general, but more severe in the right arm. No initial symptom noted. Both arms were rigid and head constantly turned to the right. There were in all twenty-three convulsions. Death occurred in thirty-eight hours. Temperature, one hour after admission, 102.4°; morning of next day, 105.6°; later, 107.4°, 106.2°, 107.8°—the last, one hour before death.

CASE XLIII.—Male, aged seventeen; fell one story; large hematoma on left frontal region; unconscious till death; hemorrhage from nose, mouth, and left ear, and under conjunctiva of both eyes; pupils equally dilated; slight convulsive movements of right side soon terminating in right hemiplegia, with rigidity of left side; death from pulmonary edema occurred in five hours; temperature, one hour before death, was 105.4°.

CASE XLIV.—Male, aged thirty-seven; jumped from a fourth-story window to the street while drunk; lacerated scalp wound in left posterior parietal region, and fissure running from it into posterior fossa; both pupils widely dilated; patient loud and abusive in language; slight left facial paralysis; incontinence of urine; pulse, 118, soon becoming irregular and almost imperceptible. The patient became quiet, and a little later comatose. Temperature, 97.6° by rectum. Three hours after admission he had three clonic spasms of right arm at varying points. Died in six hours after admission while under ether, given for reduction of a dislocated hip.

CASE XLV.—Male, aged thirty; struck by a falling ladder; hemorrhage from mouth and nose, and blood and brain matter exuded from the right ear; both eyes protruded, the right eye the more so; both pupils contracted and irresponsive to light; right facial paralysis; respiration stridulous. Right pupil soon

began to dilate slowly. Temperature, 100°; pulse, 98. Patient remained unconscious till death, two hours after injury.

CASE XLVI.—Female, aged thirty-five; fell down stairs; admitted next day, still unconscious; ecchymosis in left posterior parietal region; hemorrhage from left ear; left eye protruded; left pupil dilated. Temperature, 101°; pulse slow. Vomiting profuse. Next day paresis of whole right side; urine incontinent; some pulmonary edema. On the third day rigidity of the muscles of the back of the neck. Hemorrhage from the ear continued a week, lessening in amount and becoming serous in character. Patient continued unconscious till death, at the end of ten days, from asthenia. Temperature ranged from 100° to 102° till the morning of the eighth day, when it suddenly rose from 101° to 103°. From this time it rose, with morning depressions, steadily to 107.4° on the day of her death.

CASE XLVII.—Male, aged thirty-five; cause of injury unknown; found unconscious; small hematoma on left temple; hemorrhage profuse from both ears; evidence of previous hemorrhage from both nostrils; pulse scarcely perceptible; stertor; pupils both equally dilated; complete relaxation of limbs, and no response to peripheral irritation. Left facial paralysis was developed two hours before death, which occurred in six hours without restoration of consciousness. Temperature on admission was 98.6°, rose to 99°+; pulse, 64 to 128; respiration, 24.

CASE XLVIII.—Male, aged twenty-four; fell down stairs; wound over right eye; hemorrhage from right nostril; coma; stertor; pupils contracted; temperature, 98.5°; pulse, 120; no paralysis or muscular rigidity; reflexes normal; fracture of left thigh. Clonic spasm of left side five hours after admission. Death in ten hours after reception of injury. Hourly temperature, 100°, 101°, 102.4°, 102.4°, 103°, 104.4°, 105°, 106.4°. Thirty minutes post mortem, 108.8°.

CASE XLIX.—Male, aged four; fell two stories, striking the back of the head; small scalp wound just above external occipital protuberance; large hematoma above each ear; profuse hemorrhage from both ears and mouth and hæmatemesis; depressed fracture could be felt beneath the wound; unconscious; right pupil dilated; neither pupil responsive; slight rigidity of muscles of right side. Temperature, 100.8°; pulse and respiration very rapid; respiration became Cheyne-Stokes. Died in four hours.

CASE L.—Male, aged fifty-nine; fell two stories through an elevator and struck his head; contusion about right ear and nose; unconscious for ten days; hemorrhage from right ear and nose and under right conjunctiva; stertor; pupils irregular. At the end of a week restless, and required to be kept in bed by an attendant. Discharge from ear straw-colored. At the end of two weeks patient entirely conscious. Ten days later he walked a little and began to recognize people, and after another ten days he was mentally recovered.

CASE LI.—Male, aged thirty-three; thrown from a truck and received a blow upon the head; scalp wound in left temporal region; profuse hemorrhage from left ear; pupils regular. He was semi-comatose, but conscious and rational, next day, and two days later became delirious. Hemorrhage from the ear ceased on the sixth day, delirium continued a week, and vertigo for upward of three weeks. No further symptoms were developed.

CASE LII.—Male, aged thirty-five; struck on the head by a brick falling eight stories; not made unconscious; compound, comminuted, depressed fracture at right temporo-parietal junction; squamous portion of temporal bone comminuted, and one large fragment driven into the brain; hemorrhage from right ear and no-tril; right pupil contracted; little or no shock. He recovered with some deafness remaining in right ear.



CASE LIII.—Male, aged thirty-five; fell down stairs while drunk; coma; stertor; hæmorrhage from left ear, which continued twenty-four hours; pupils contracted. Regained consciousness in twelve hours. Five days later, left facial paralysis, both upper and lower face involved, and food accumulated between cheek and jaw; ptosis, etc. No loss of sense of taste. He entirely recovered from paralysis, and suffered only from occasional vertigo.

CASE LIV.—Male, aged nineteen; thrown from his horse while riding, and struck on the back of his head; contused wound in right occipital region; profuse hæmorrhage from right ear; pupils contracted; unconscious till after his removal to his house, a distance of two miles. He then had severe nausea and vomiting, and was somnolent for several hours. The next morning his pulse and temperature were normal, and he suffered from severe pain in the head, which continued for three days. Hæmorrhage from the ear ceased at the same time. There was no rise at any time in pulse or temperature. At the end of ten days there was still some pain and tenderness on deep pressure just above and behind the ear. His recovery was complete.

CASE LV.—Male, aged forty-four; said to have fallen and been struck by a plank; admitted to alcoholic ward, and next day transferred to surgical service when he had partially recovered consciousness. The left upper and lower extremities, which had been rigid, had become hemiplegic and anæsthetic. There was an abrasion of the nose, a contusion of the left eye, and a hæmatoma of the right posterior parietal region. Three days later the left hemiplegia had become complete; movements from the bowels were conscious but involuntary; bladder controlled; temperature, 99°. His mental condition had been unchanged since he recovered consciousness. He answered questions rationally, and never varied in his explanation of the manner in which his injury had been received. He talked constantly and rambled in his speech. Upon incision, an open fissure was disclosed, which ran obliquely across the right parietal bone, from the anterior superior angle, and into the occipital as far as it could be conveniently traced. There was no depression. A large opening was made through the bone by trephining and use of the rongeur. An epidural clot was found to extend from the coronal suture in front to the superior occipital fossa behind, and from the median line to the middle fossa, and was an inch and a half in thickness in its central portions. This clot, when removed, measured four ounces and a half by volume, and left a large cavity, the result of cerebral compression. The dura was apparently uninjured. As hæmorrhage was free from some inaccessible point beneath the bone, the cavity was temporarily packed with gauze. Two hours after the operation he could move the left leg. Twelve hours later there was sensation in the left arm. The next day sensation was perfect, movements of the left arm still restricted, and movements of the bowels occurred which were controlled. Temperature, 98.5°. The second day the brain had regained the volume it had lost by compression, and his mental condition was apparently normal. In four days he was in all respects entirely well, except for his external wound.

CASE LVI.—Male, aged twenty-three; thrown from his horse and sustained a depressed fracture of the left frontal bone two inches above the orbit. Partial loss of consciousness; hæmorrhage from nose and mouth; pupils normal; skin pale and moist, and extremities cold; two or three hours later projectile vomiting and hæmatemesis. There was slight ecchymosis of the left upper eyelid before the vomiting; after it both eyelids became excessively ecchymotic, and at the same time the outer half of the left conjunctiva became filled with blood. The temperature was usually about 99°, never above 100.5°. He had temporary amblyopia, and no other results followed.

CASE LVII.—Male, aged forty-five; knocked down and beaten about the head; lacerated scalp wounds in left fronto-parietal region; coma; hæmorrhage from both nostrils; pupils normal; pulse, 100. He recovered partial consciousness in one hour, and became excessively irritable; full consciousness returned next day, and he was removed from the hospital.

CASE LVIII.—Male, aged twenty-six months; fell four stories; extensive scalp wound in right occipital region; repeated vomiting; hæmorrhage from right ear. Three hours later he became restless, had clonic spasms upon the right side, and gradually lost consciousness. There was apparent complete right hemiplegia; movements of the left side were easily induced; pulse 130 and weak; breathing stertorous. Consciousness gradually returned within twelve hours, and no paralysis remained. There were no further symptoms.

CASE LIX.—Male, aged thirty; fell from elevated railroad to sidewalk, striking upon left side of head and face; contusion over left eye; semi-conscious; hæmorrhage from right ear; pulse and respiration slow. The next day patient recovered consciousness enough to discover that he had become blind in the left eye. He responded slowly to questions and slept most of the time. Ophthalmoscopic examination of the left retina was negative. The left pupil would not respond to direct exposure to light, but would contract with the other pupil on simultaneous exposure. In the opinion of Dr. P. A. Callan, the blindness was due to pinching of the optic nerve by a fracture involving the optic foramen. Fifteen days later Dr. Callan found commencing atrophy of the optic nerve. Eight days after the injury there was partial left facial paralysis, and the tongue deviated to the right. He complained of pain over the left eye and behind the right ear. A slight sero-sanguinolent discharge began to flow from both ears, continued for some days, ceased, and reappeared from the right ear. Temperature on admission was 99°, rose to 100°, and afterward varied, usually from 99° to normal.

The patient, a man of unusual intelligence, stated, after his recovery, that for five weeks after his accident he was unable to recollect the attendant circumstances or anything that happened about that time or afterward; that his mental condition was one of great confusion. After that period his memory was restored and his mental confusion disappeared. His recovery was ultimately complete, with the exception of the loss of sight of the left eye.

The diagnosis made was: Fracture of the frontal bone, commencing on the left side, extending through the anterior fossæ and through the right middle fossa and petrous portion, involving the left optic foramen and lacerating the prefrontal lobe.

CASE LX.—Male, aged forty-seven; was knocked down by a blow and his head struck heavily upon the pavement; slight contusion upon lip and over right eye; pulse, 72; temperature, 100.2°; unconscious; stertor; pupils normal; soon became delirious and was unable to articulate. He remained in a condition of stupor and delirium for ten days; required mechanical restraint. He was unable to articulate, and was dysphagic; attempted to drink his urine. His mental condition and power of articulation then improved for two weeks, though he developed left facial paralysis, involving lower face; dysphagia disappeared. There was then an interval of a few days, when he was irritable, restless, and disposed to wander about the ward at night. His temperature varied from 100° to normal, and was usually at the higher point. From this time he became quiet and conversed intelligently, though his mind wandered. He had no recollection of his injury, of what preceded it, or of anything that occurred afterward. He failed to recognize his location or to appreciate his surroundings. His memory of

more distant events was better, but still defective. His laugh was vacant, and there was some perceptible loss of power on the left side. He continued in a demented condition and incidentally a dipsomaniac till his removal to an insane asylum within the last month, two years after the injury.

CASE LXI.—Male, aged twenty-two; fell two stories and struck right side of the head and face and right shoulder; contusions of those regions and fracture of acromion; unconscious; hæmorrhage from right ear, and four hours later from the nose; regained consciousness in five hours; hæmorrhage from ear ceased in three days; temperature, 101° to 100°; normal after four days.

CASE LXII.—Male, aged twenty-two; fell three stories; contusions of right side of head, face, and eye; hæmorrhage from right ear and mouth; unconscious; pulse slow and full (60); breathing labored; temperature, 101°; pupils normal. Respiration soon became easier, but the patient was irritable and restless. He did not regain consciousness for five days, during which time he continued to be irritable when disturbed, and was not wholly rational for five days longer. Toward the end of the second week his articulation became thick and right lower facial paralysis became evident. At the same time a swelling without discoloration of the left side of the face, which had been present since admission, perceptibly increased, but soon afterward disappeared. The facial paralysis persisted and the difficulty of articulation increased. His mental condition varied, but progressively deteriorated. There was slowness of perception and hesitation in expression. His laugh was silly and his manner vacant. There also seemed to be a sensory aphasia at a late period. In reply to questioning about the manner of his accident, he would talk about taking a basket of clams from Koster & Bial's. He might say "Koster & Bial's," but was quite likely to say "Koster and clams." At the beginning of the second month there was a sudden change. His mind in a day became clear; he knew where he lived and that he was in a hospital. He conversed rationally about his accident and how it occurred. He lost his delusions and rested quietly at night, though his speech was still a little indistinct and his facial paralysis had not entirely disappeared. Temperature after the third day was rarely above 99° and often below it. His recovery was ultimately complete.

CASE LXIII.—Male, aged forty; fell five steps of a stairway; walked home; hæmorrhage from right ear; had two convulsions next day and was then taken to the hospital; hæmorrhage from the ear still continued; stupid; muttering; two other convulsions, most marked on the right side, followed by mild delirium through the night. No previous history of epilepsy or excesses in drink. Temperature, 101.2°. Three days later patient was still stupid, said little and that incoherently, and was delirious. Temperature had ranged from 101.2° to 100.6°. He was transferred to Bellevue, and there became wildly delirious for three days, and then quiet and rational. Temperature, 98.8°. No further history noted; no other symptoms.

CASE LXIV.—Male, aged forty-two; cause of injury unknown. Semi-conscious and drunk; hæmorrhage from right ear which continued eight days; membrana tympani ruptured; violent mania for two days and mild delirium two days longer; temperature, 100°. Four days afterward he suffered pain in the head; had occasional delusions; his mental processes were slow, and his tongue deviated to the right; urine and feces incontinent. In the second week he became rational and only occasionally soiled the bed. His tongue still deviated. At the end of a month he no longer had symptoms; even the deafness had improved. Temperature second day, 103°; gradual decline to 99° in four days. After seventh day habitually normal to 99°.

CASE LXV.—Male, aged forty; fell down a gang plank. Unconscious; hæmorrhage from both ears, more from the right; pulse, 100; temperature, 100°. After some hours consciousness returned and he was able to speak. Delirious through the night. On the next day his tongue deviated to the right; pupils dilated, left more so than the right; mind still clouded; temperature, 99.6°. Four days later he was rational. No further symptoms.

CASE LXVI.—Male, aged twenty-three; walked out of a window while sleeping and fell three stories to a stone pavement below, striking an iron fence on the way down. He remained unconscious for fifteen or twenty minutes. On admission, there was a wound of the external right ear. While this wound was being dressed a very profuse serous discharge began from this ear and continued for several days. Pupils and respiration normal; severe vertigo, aggravated on attempting to arise or on opening his eyes; he vomited several times; pulse, 90; temperature, 99°. On the fourth day he had upper and lower incomplete facial paralysis which continued for a week's time. On the eighth day he had three epileptiform convulsions and one on the next day. The head and eyes were first turned to the right, then the arms and finally the legs were involved. On the twentieth day he began to have severe pain in the right ear, and as the mastoid region later became swollen and inflamed, it was trephined for exploration with negative result. The temperature but once exceeded 99°. The mastoid inflammation disappeared at once after trephination. Recovery was complete.

CASE LXVII.—Male, aged fifteen; kicked in the back of the head by a horse. No apparent external injury; profuse hæmorrhage from right ear; was moaning and restless; became delirious after a few hours; afterward irrational and incoherent; irritable; temperature, 100°; delirious or irrational for five days; temperature, 100° to 102°; removed from hospital in two weeks; temperature, 99°; still had delusions.

CASE LXVIII.—Female, aged six; fell two stories to pavement; unconscious; lacerated wound over right eye and hematoma; contusion of face; severe hæmorrhage from mouth and nose and hæmatæmesis; subconjunctival hæmorrhage in both eyes; pupils dilated; stertor; respiration frequent; temperature, 99°; reflexes lost; incontinence of urine and feces; surface irritation caused violent convulsions; initial symptom in the eyes, continued twenty-four hours; also hæmorrhage from nose and mouth. After that time all the symptoms disappeared, and patient was out of bed on the tenth day; temperature rose in three hours from admission to 103.2°; fell to 98.6° on the second day.

CASE LXIX.—Male, aged four; struck by some falling object; contusions over left frontal and right parietal eminences; hæmorrhage from mouth, nose, and both ears, and continued from left ear for five days; unconscious; left pupil dilated; left facial paresis; temperature, 99°; somnolent forty-eight hours, but rational when roused; incontinence of urine and feces; temperature, 100° on second day and 100.4° on third day; did not get below 100° till tenth day; pulse usually 120; symptoms gradually disappeared.

CASE LXX.—Male, aged forty; fell one story to pavement, striking back of his head; scalp wound in right occipital region; hæmorrhage from left ear; left pupil dilated; soon became normal; unconscious; partially restored in ambulance; on admission, restless and delirious; temperature, 99.4°; pulse, 60; respiration rapid; moved right side only; incontinence of urine and feces. Temperature ranged during the first week from 100°+ to 101°; then became 99°+ in the morning, and at end of second week became normal; pulse varied from 63 to 64; required continuous mechanical restraint for four days and

at night for one month. His mind underwent the typical changes (see remarks on diagnosis), and became ultimately completely restored.

(To be continued.)

## TUMORS OF THE ORBIT AND NEIGHBORING CAVITIES.\*

By CHARLES STEDMAN BULL, A. M., M. D.,

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF THE CITY OF NEW YORK, SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

**CASE I. Spindle-cell Sarcoma of Periosteum of Orbit.**—T. D. S., a boy, aged four years and a half, was brought to me by his parents in the latter part of January, 1876, with the following history: He was a large child for his age, of the average mental development, and had always been robust in health. There was no unfavorable family history to be elicited after careful questioning, and no evidence of inherited syphilis in the child. For several months the parents had noticed a slight swelling at the outer angle of the left orbit, accompanied by slight redness of the eyeball and some swelling at the outer angle of the upper lid. These symptoms gradually increased, but there was no complaint of pain and no evidence of any disturbance of vision. When I saw the child there was a very perceptible orbital growth at the outer angle, which seemed to involve the upper and outer parts of the orbit. The left eye was pushed downward and inward, but not forward, and its motility was decidedly limited upward and outward. The upper lid was slightly swollen and drooped a little, but could be freely opened and shut. The growth was entirely non-sensitive. The media were perfectly clear, the iris reacted promptly, and the ophthalmoscopic examination was negative. Vision was apparently normal. There was a slight mucous discharge from the conjunctiva. A careful rhinoscopic examination revealed nothing abnormal. No history of any injury could be obtained. The boy was carefully watched, and by the middle of February the symptoms had all increased. The eye was displaced downward more decidedly and motility upward was entirely lost. For two days the child had complained of some pain. The pre-auricular gland on the left side had become swollen and somewhat painful. Ophthalmoscopic examination negative.

By the 1st of March all the symptoms were much increased in severity. A slight ulceration of the cornea appeared just above the center. The motility of the eye was limited in all directions. The pre-auricular gland was very much enlarged, but there was no other glandular infiltration. The orbital margin was swollen, and the swelling extended up on the forehead and backward into the temporal fossa. There was little or no protrusion of the eye forward and the lids could still be opened. A diagnosis was made of pure orbital tumor, probably starting in the periosteum, and owing to the somewhat rapid increase of the symptoms and the high fever of the last two days it was decided to operate and attempt to save the eye.

On March 3d the left external canthus was split, the incision being carried outward upon the temple for somewhat more than an inch. The left temporal artery was divided and at once ligated. The upper lid was then carefully dissected upward and turned over upon the forehead. After the bleeding had been checked, the orbital periosteum was found very much thickened on the outer and upper walls of the orbit. The infiltration also involved the orbital tissue as far back as the finger could extend, but did not seem to involve the capsule of

the eyeball. The latter was pushed carefully toward the nasal side and held there. An incision was then made through the periosteum along the superior orbital margin, and the periosteum was then carefully stripped up from the bone on the upper and outer walls of the orbit as far back as the knife and forceps could reach. This was removed in strips, and with it also the orbital tissue and the lacrimal gland. The periosteum was also removed from the frontal bone and temporal fossa as far as it seemed to be infiltrated, and the pre-auricular gland was carefully dissected out and removed. The orbital cavity was then washed out with a mild solution of zinc chloride and the upper lid brought down in place, and the lines of incision accurately coapted and sutured. Atropine was instilled and the eye closed with the ordinary dressings then in use. For the first three days there was considerable reaction, the lids being much swollen and the wound discharging considerable pus, so that one or two stitches had to be removed. The cornea became generally hazy, but did not slough, and eventually cleared up remarkably.

On March 15th a purulent discharge appeared from the left ear without any preceding pain, but followed by severe pain extending down on the left side of the neck and accompanied by high fever and a pulse of 140. An examination showed a perforation of the membrana tympani just back of the handle of the malleus. The discharge from the auditory canal ceased in four days, but the perforation did not close for nearly three weeks. From this time there were no adverse symptoms, and the patient was discharged at the end of the sixth week. A microscopic examination of the growth proved it to be a spindle-cell sarcoma, which had originated in the periosteum.

The little boy was carefully watched, being seen regularly once a month, but there was no return of the growth until the spring of 1880. Its progress was then very rapid, for in less than two months it filled up the entire orbit, causing marked exophthalmus and destruction of the eyeball by sloughing of the cornea. The entire contents of the orbit were then removed, including the eyeball and the entire periosteal lining as far back as the apex. The orbit was then carefully washed out with a solution of mercuric bichloride (1 to 1,000), and the lids closed and dressed in the usual manner. The patient did very well, there being little or no reaction, and he was discharged at the end of a week. He was seen at rather irregular intervals, although his parents had been warned that the growth would probably return. In May, 1885, he presented himself with a swelling of the lower lid and cheek on the left side, which had appeared two weeks before. This proved to be a dense infiltration of the tissues of the lid and cheek springing undoubtedly from the diseased periosteum at the edge of the orbit. There was no return of the growth in the orbit, and the appearance of the external infiltration did not suggest its having spread from any complication in the maxillary sinus. The parents declined to permit any further operative interference, but allowed me to keep the boy under observation. The orbit gradually filled up with the growth, while the external infiltration steadily advanced into the temporal fossa, over toward the nose and upward upon the forehead, and the patient finally died from exhaustion, without any head symptoms, a little more than ten years after the first appearance of the tumor.

**CASE II. Small cell Sarcoma of Orbit, Maxillary Antrum, Nasal Meatus, and Ethmoid Cells.**—Mrs. A. H., aged twenty-nine, came to me on June 12, 1876, with the following history: Twelve years before a small growth appeared at the external angle of the left orbit, just beneath the superior orbital margin. It was the size of a large pea, and for a number of years occasioned no discomfort and showed no tendency to increase in size. After about six years of quiescence it began slowly to

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grow until it reached the size of a walnut and caused a protrusion of the upper lid and external canthus, and a slight displacement of the eye inward. It then ceased growing until about four months before I saw her, when it suddenly began to increase in size and became very painful. On examination, I found the following condition of the parts: The upper lid was pushed forward and drooped considerably over the eye, but could be elevated, and the skin was of a marked dusky-red color. The eyeball was pushed downward and inward, and protruded nearly half an inch beyond the plane of the fellow-eye, and its motility was limited in all directions. The conjunctiva was injected, and the palpebral veins were engorged and prominent. The media were clear, and the retinal veins were extremely engorged and tortuous. The patient complained of a constant pain over the anterior surface of the superior maxilla and at the infra-orbital foramen, and said that during the last four months the vision of the left eye had materially failed. She could not read, but could count fingers at twenty feet. The other eye was normal. The tumor could be seen and felt through the lid, and by careful palpation the growth could be felt along the floor and outer wall of the orbit. Rhinoscopic examination revealed a displacement of the septum nasi toward the right side, and a nearly complete obliteration of the left nasal meatus by what appeared to be a moderately hard mass coming from the middle meatus. Nothing could be felt with the finger posteriorly. The patient stated that for some months she had not been able to breathe through her nose. With this history and the digital examination, it seemed probable that the tumor had begun in the maxillary antrum or nasal meatus, and had involved the orbit secondarily. Assuming this to be a correct diagnosis, the patient was told that the only means of relief was an operation, but that, owing to the deep-seated nature of the growth and its probable origin, its removal would probably not be complete, and that it would be likely to return. She was also told that in all probability the eye could not be saved, but that an attempt would be made to preserve it. The vision by this time had sunk to counting fingers at two feet, and the optic disc was beginning to assume a dirty-white color. She consented to an operation, which was done on the following day. The external canthus was split, and the upper lid turned up over the forehead and held there. A further examination with the finger and large probe showed that the entire orbit was filled with the growth, and that any attempt to save the eye would prove a failure. Enucleation was immediately done, and then the entire contents of the orbit were carefully removed. After this was done the tumor could be seen projecting through a large opening in the orbital plate of the ethmoid and also through the sphenoidal fissure. It evidently filled the ethmoidal cells, extending to them from the superior and middle nasal meatus, and was of much greater extent than had been at first recognized. The orbital plate of the ethmoid was then removed, and all the growth that could be reached was dissected out. The floor of the orbit had not been perforated, and the possibility of the antrum not being involved was recognized. The lacrymal bone was next removed, and a free opening made into the nasal meatus. This was found filled with the growth, which was removed by forceps and fingers as far down as possible. It was necessary to break down and remove the entire inner wall of the orbit, and even then the growth could not be reached without great difficulty. The meatus was cleaned entirely of the growth by working from below through the nostril as well as from above, and then the orbit, ethmoid cavity, and nasal meatus were thoroughly washed out with a solution of carbolic acid. A careful examination of the opening from the maxillary antrum into the nasal meatus was made, but no protrusion of the growth or

enlargement of the opening was discovered. The orbit was then tamponed, the upper lid replaced and the canthus sutured, and the ordinary bandage applied. The patient did very well, having but little local reaction and but slight rise in temperature. She was discharged on the eighth day, with directions to report once a week until further orders. There was no return of the growth for eight months, when a small nodule was noticed in the left temporal fossa. The left nostril remained still free, and the orbit was healthy and normal in appearance. The patient was urged to allow the removal of this nodule, but declined to have it done. It grew slowly to the size of a walnut, and then remained quiescent for several months. It then suddenly began to increase, and at the same time a nodule was felt at the apex of the orbit, and another on the inner side in the cavity of the ethmoid bone. All these nodules grew rapidly, and the one in the temporal fossa soon extended from the lower margin of the zygoma upward and forward upon the forehead and backward to the auricle. The lower portion was moderately hard, but the portion which extended upon the forehead was soft, fluctuating, and very sensitive to the touch. I declined all further operative interference, as it would undoubtedly have hastened the patient's death, which occurred, after great suffering, four months later, and about thirteen years after the first appearance of the growth. Before the patient's death the orbit and nasal meatus had become entirely filled by the growth, which had also extended back into the pharynx. The tumor removed from the orbit and neighboring cavities was sarcomatous in nature, of the small-cell variety, but in places was distinctly myxo-sarcomatous. After the patient's death I was permitted to examine the orbit, and found that the neighboring cavities, including the maxillary sinus, were entirely filled by the growth, though the floor of the orbit was still intact.

*CASE III. Spindle-cell Sarcoma of Orbit and Adjacent Cavities.*—J. H., a young gentleman, aged twenty-two, consulted me in December, 1879. The left eye had been defective in vision since childhood, and occasionally squinted. For the past two weeks there had been a constant dull pain in the orbit, with ptosis and some protrusion of the eye. Examination showed limitation of motility in all directions, chemosis of the ocular conjunctiva on the temporal side, some ptosis and slight exophthalmos, media clear, fundus normal, and V. =  $\frac{2}{3}$ . On the floor of the orbit, reaching from the infra-orbital notch to the external canthus, was a hard, resisting growth, which pressed the lower lid forward, and which could be traced for some distance backward into the orbit. It was very sensitive to pressure. The patient refused all operative treatment.

By February 16th the exophthalmia was very marked, and the patient complained of severe occipital headache, and at times staggered when he walked. The lower lid was everted and the orbital growth was very prominent at the external angle. There was dense infiltration of the palpebral and ocular conjunctiva, the eye was immovable, the cornea was hazy, and vision was reduced to perception of light. The patient complained also of constant pain in the region of distribution of the infra-orbital nerve. He consented to an operation, and two days later the eye was enucleated and the tumor removed with comparative ease. The latter was attached very firmly to the sheath of the optic nerve and only loosely to the orbital tissue; but the latter was densely infiltrated, especially along the floor of the orbit, and on this account the entire contents of the orbit were removed down to the periosteum, which latter seemed perfectly healthy. The infiltration of the orbital tissue and the pain over the infra-orbital nerve led me to make another careful rhinoscopic examination, but nothing abnormal was found. The tumor, on being examined, proved to be a spindle-cell sarcoma, and the orbital tissue was infiltrated with small round cells. By

the middle of April, or two months after the first operation, there were well-marked signs of a recurrence of the tumor in the periosteum on the floor of the orbit. A second operation was immediately done, the periosteum, which was very much thickened, being stripped upon all sides from the orbital margin to the apex. It was very vascular, and the hemorrhage was profuse. The orbit was then washed out with a strong solution of carbolic acid, and a careful examination with the finger was made of the floor, inner wall, sphenoidal fissure, and optic foramen, but no trace of abnormal growth could be discovered. The hemorrhage still continued, and it became necessary to plug the orbital cavity. Violent reaction followed in the skin of the lids, cheek, and temple, and the plugging was removed the next morning. The skin of the left side of the face became decidedly erysipelatous. The reaction slowly subsided, but left both lids retracted and adherent to the external angle of the orbit, and the lower lid adherent to the inferior orbital margin for its outer third, and the cavity of the orbit was much contracted. The floor of the orbit was found intact.

Two months later, on June 25, 1880, a firm nodule, as large as a filbert, appeared over the left malar prominence. It was firmly adherent to the periosteum, but the skin was freely movable over it. In a month this nodule had increased threefold in size; it was elastic and sensitive to the touch. Another nodule, much smaller, was discovered along the lower margin of the orbit. On July 30th these two external nodules were thoroughly removed, the bone was carefully scraped and then cauterized with the actual cautery. By the first week in September, an external tumor over the malar bone had returned and had reached the size of a small pear, but it was very irregular and nodulated. The skin was drawn tightly over it and was but slightly movable. This external growth was found to be continuous with an orbital growth, which involved the floor, inner and outer walls of the orbit, while the external growth extended down upon the superior maxilla, and over into the temporal fossa. The patient urged a fourth operation, which was done in the following way: An incision was made along the lower-lid margin as in the Arit-Jaesche operation for entropion, and was extended an inch and a half from the external canthus toward the ear. Another incision was made from the inner end of the first incision down along the nasal furrow to the ala of the nose. This skin flap was carefully dissected up and reflected from the growth. The hemorrhage was profuse and it was necessary to ligate several vessels. The extra-orbital portion of the growth was then thoroughly removed, and there was then revealed a ragged opening through the anterior wall of the superior maxilla into the antrum, through which the growth protruded. The growth was then removed from the orbit and here a large ragged hole was discovered through the floor of the orbit. The tumor filled the antrum, nasal meatus, ethmoid cavity, and sphenoidal fissure, and as much of it as could be reached was removed, the antrum and nasal meatus being thoroughly evacuated. The parts and cavities were then thoroughly washed out with a solution of mercuric bichloride (1 to 1,000) and the wound closed. No great reaction followed, though the temperature went up to 103°, and there was not much suppuration. The external wound healed, but in less than six weeks the growth again appeared in the orbit and externally over the malar bone. The case had long been regarded as hopeless, but the patient lingered in great suffering till the latter part of January, 1881, and died from exhaustion.

#### CASE IV. *Epithelioma of the Lid and Sarcoma of the Orbit.*

—In the latter part of September, 1880, a woman, aged forty-two, from whom I had previously removed a small growth, apparently epitheliomatous in character, from the inner angle of the left lower lid three years before, presented herself with the

following history: There had been no trouble with the eye or lids for nearly two years. The eye then began to be limited in motion outward and to slightly protrude. These symptoms slowly increased, the upper lid became swollen, and a constant dull ache in the orbit began. Finally the sight of the left eye began to fail, and this frightened her and brought her to me. An examination showed the right eye to be normal in every respect. In the left eye the vision was  $\frac{3}{8}$ ; unimproved; the media were clear; there was a grayish discoloration of the temporal half of the disc and a narrowing of the arteries. The perimeter showed a contraction of the nasal half of the field. The left upper lid was decidedly edematous and somewhat reddened. The eyeball was pushed inward and protruded very perceptibly in advance of the plane of the other eye. There was a decided infiltration of the tissue on the temple and on the cheek just below the inferior orbital margin. The patient was told that she probably had a tumor of the orbit, and that it must be removed, but that I would attempt to save the eye, and she consented to the operation. As the exophthalmia was decidedly forward and the limitation of motility was outward, the conjunctiva was divided at the outer canthus and the wound then enlarged upward and downward with the scissors and handle of a scalpel. Almost immediately a growth was felt extending along the outer wall of the orbit and filling the entire apex. The external rectus muscle was then divided at its insertion and the eyeball turned far inward. The dissection of the tumor was then continued, but it was found so intimately connected with the sheaths of the muscles and of the optic nerve, as well as with the periosteum, that I cut through the nerve and the muscles near the apex of the orbit, as a necessary preliminary to the removal of the tumor from its orbital attachments. The growth extended on the inner side of the eye as well as on the outer side, and after considerable trouble was removed, leaving the eye in place. About three quarters of an inch of the optic nerve was removed with the tumor. The floor of the orbit appeared healthy and there was no demonstrable connection between the growth in the orbit and the infiltration in the cheek and temple. There was no reaction, and the patient was discharged at the end of ten days. The eyeball became slowly atrophic and the cornea cloudy. This case was watched very carefully, being seen every week or two, as the history of the case pointed to a recurrence of the tumor. The infiltration of the cheek and temple slowly subsided, and at the end of three months there was nothing abnormal in the patient's appearance except the phthisical eyeball. Nearly ten months after the operation, however, there appeared a well-marked nodule on the external surface of the superior maxilla on the left side, just below the orbital margin and external to the infra-orbital foramen, and the diffuse infiltration reappeared on the temple. The eyeball, which had previously receded into the orbit, began again to protrude. Another careful examination was made of the naso-pharynx, but nothing abnormal was discovered. As the microscopic examination of the first tumor had shown it to be a small-cell sarcoma, I advised an immediate operation including the removal of the atrophied eye, but the patient refused her consent till November, 1881, nearly four months after the reappearance of the growth. She was then suffering severe pain at times in the orbit and temple. The eye was again protruded beyond the orbital margin and the growth on the cheek had become as large as a horse-chestnut and was very sensitive. The skin was movable over this growth, which was firmly adherent to the bone. The eyeball and entire contents of the orbit were first removed. After the hemorrhage had been checked a careful examination showed a defect in the orbital plate of the ethmoid, rather far back, and another in the floor of the orbit. A probe passed through these openings into the ethmoid cells and

maxillary antrum discovered a gelatinous mass of considerable consistence in both. This was sufficient evidence that both these cavities were filled with the growth. The large nodule was then removed from the superior maxilla and the external surface of the bone carefully examined, but no opening into the antrum was found. No further attempt was made to remove the growth from the cavity of the ethmoid or the antrum, both on account of the severity of the operation and the hopelessness of any successful removal of the diseased bones. The patient made a good recovery, and there was no return of the external tumor on the surface of the superior maxilla. The disease, however, soon extended from the neighboring cavities to the orbit, and also invaded the nasal meatus and made rapid progress. The patient suffered considerable pain and the nasal cavity soon became so completely blocked that she breathed almost entirely through her mouth. In three months the growth filled the orbit and protruded between the lids and could be seen at the entrance of the left nostril. About four months after the last operation she began to complain of intense frontal headache, which at times rendered her delirious, and in one of these severe paroxysms she had a violent convulsion. This was general in character and ended in coma from which she never rallied. An autopsy could not be obtained.

CASE V. *Myxo-sarcoma of Orbit and All Adjacent Cavities.*—On January 12, 1881, a gentleman, R. M., aged thirty-eight, presented himself at my office with the following history: The first symptom which he had noticed had been a protrusion of the right eye, which began five years ago, and five months later the left eye also began to protrude. During these five years there had been a steady increase in the exophthalmia and in the limitation of motility in both eyes in all directions. There had been some pain of late, which was located at the root of the nose and just above both eyes. For a long time—but just how long he does not know—there had been difficulty in breathing through the left nostril, and for more than a year respiration was entirely abolished through both nostrils, and he had become an absolute mouth-breather. He had had several polypi removed from the right nostril at different times, with a temporary improvement in breathing.

An examination showed a marked protrusion forward and outward of both eyes, so that the lids could with difficulty be closed over them, and the axes were widely divergent. At one period of the disease there had been crossed diplopia, which subsequently disappeared. The eyes were almost immovable, and the ocular conjunctiva was deeply injected. The irides responded to light, the media were clear, and the ophthalmoscopic examination showed nothing but engorged and pulsating veins. R. E. V. =  $\frac{1}{2}$  to  $\frac{3}{4}$ . L. E. V. = perception of light. The sight had begun to fail one year ago in both eyes and had slowly grown worse. There was pain on pressure backward of the eyeballs. The posterior nares on both sides were blocked by a growth extending across the anterior pharyngeal space. The left nostril was impervious. The right nostril was blocked by a polypus, which apparently grew from the left wall of the meatus, entirely filled it, and pushed the inferior turbinated bone and septum nasi over to the left side. It was soft and bled easily. The growth behind, which filled the posterior nares and extended into the pharynx, was hard and resistant, and apparently was attached to the body of the sphenoid. Nothing was discernible on the floor or inner wall of the right orbit, but in the left orbit the floor was pushed upward and the orbital plate of the ethmoid pushed outward, and I thought I could detect a tumor in the orbit. The external surface of both cheeks and temples was smooth and normal in appearance. The desperate character of the case was at once recognized, and the patient was told that a complete removal of the

growth was hopeless, but that the growth could be removed from the nostrils and his respiration made more comfortable. To this he consented, and this was done both anteriorly and posteriorly. A large, gelatinous, polypoid mass, attached to the outer wall high up, was removed from the right nostril. By means of a guarded bistoury, blunt scissors, and polypus forceps, the entire mass was removed from the posterior nares, including with it a large portion of the inferior turbinated bones. The hemorrhage at first was profuse, but was soon checked, and a careful examination of the parts made. The whole middle and superior nasal meatus were filled with the tumor, which could also be felt protruding from the opening into the left maxillary antrum. After the first week I did not see this patient again until five months had elapsed, when he came again for relief of his respiration. His condition was then deplorable. The left eye was sightless, the cornea cloudy and ulcerated, and the lids could not be closed. The growth had appeared as a large protuberance at the left inner canthus, projecting through the lids, and had also appeared at the inferior margin of the orbit and filled up the temporal fossa. He had perception of light still in the right eye, in which the optic disc was found in a condition of gray atrophy. Both nostrils had again filled up with a solid, somewhat resistant mass. I repeated the same operation, removing as much of the growth as could be reached, and again rendering the nostrils free. The mass was not polypoid, but on both occasions proved, on microscopical examination, to be myxo-sarcomatous in character. In two months the nasal meatus had filled up again, while the growth in the right orbit had increased very rapidly. He suffered greatly from pain deep in the orbits and frontal headaches, but lived for nearly four months longer without any additional head symptoms, and finally died from exhaustion. In this case, although all the deep bones of the face and skull had become involved, the tendency of the growth had been outward. In spite of all urging an autopsy was positively refused. Before death the tumor had perforated the conjunctiva at the inner angle of the left eye, and extended over the side of the nose and down upon the cheek.

CASE VI. *Melano-sarcoma of Conjunctiva and Orbit.*—Early in August, 1881, a woman, F. A., aged forty-five, consulted me and gave the following history: About two months before a small, dark nodule had appeared at the supero-temporal margin of the left cornea, seated mainly in the conjunctiva. It was slightly movable, and slowly increased to the size of a small Lima bean. When I saw her the growth had encroached somewhat upon the cornea and was painless to the touch. On August 8th I removed the tumor, which was found to be adherent to the sclera, and extended somewhat along the infero-temporal margin of the cornea. It was friable and bled easily. It was thoroughly removed, and the surface of the sclera was then scraped and cauterized, and the edges of the conjunctiva brought together loosely over the wound. I did not see the patient again until November 4th, when the growth had returned. The tumor occupied the upper, outer, and lower quadrants of the ocular conjunctiva and sclera, and covered the temporal third of the cornea. It was irregularly lobulated and somewhat flattened, dark in color, quite vascular, and non-sensitive. It extended above the eyeball into the orbit as far as the equatorial region; the eye was displaced somewhat toward the nose, and its motility upward and inward was limited. The field of vision was limited on the temporal side, but central vision was still  $\frac{2}{3}$  to  $\frac{3}{4}$  +, and the fundus was normal. The patient was told that the eye must be enucleated at once, and on November 21st the entire contents of the orbit, including tumor, eyeball, and ocular conjunctiva, were removed. The optic nerve was divided far back and looked perfectly healthy, and the periosteum of



the orbit also appeared normal. The case did well, and there was nothing abnormal noticed until the following June, 1882, when a small, dark nodule was found on the outer wall of the orbit about halfway back. The patient declined another operation, and I did not see her till the last of October, when the growth filled the orbit and protruded between the lids. It seemed as yet to be confined to the orbit, for the naso-pharynx was clear and there was no evidence of any trouble in the maxillary antrum. The patient now consented to an operation, and on November 2, 1882, the entire contents of the orbit were removed with ease, though the hemorrhage was profuse. The periosteum was then cut through all round the orbital margin, and was stripped up on all sides as far as the apex of the orbit and removed. After the hemorrhage had ceased, the bone was thoroughly scraped, and then the orbit was washed out with a sublimate solution (1 to 1,000). There was little or no suppuration and the raw surface soon healed. I saw this patient at intervals until the autumn of 1886, a period of four years, and there was no return of the tumor in that interval. She then disappeared from observation, and I have heard nothing of her since. All the specimens removed at different times and examined proved to be true melano-sarcoma. The eyeball on examination proved a very interesting specimen. The tumor was almost entirely superficial and extrinsic. None of the tissues of the eye were invaded by the growth except the sclera, and even here only the superficial layers were infiltrated by the sarcoma cells. The region of the lymphatic channels around the openings of the vasa vorticosa was entirely free from any infiltration, as were also the sheath of the optic nerve and the nerve itself.

CASE VII. *Fibro-sarcoma of the Orbit*.—A gentleman, H. A., aged twenty-two, first seen on June 12, 1882, gave the following history: Has always been perfectly well, and has never noticed anything abnormal about his eyes until five months ago, when the right eye began to protrude. Since then the exophthalmus has slowly but steadily increased, but there has never been any pain. The vision of the right eye remained good until ten days ago, when it suddenly and rapidly became impaired, and now he says it is entirely blind. An examination showed that vision was reduced to perception of light. The protrusion of the eye was forward and slightly outward, and motility outward and inward was decidedly impaired. The iris reacted, the media were clear, and the fundus showed a well-marked condition of papillitis with hemorrhages. At the inner side of the orbit a tumor could be felt, apparently springing from the inner wall of the orbit, and sensitive on pressure. The left eye was normal in every respect. The patient was told the probable nature of the trouble and consented to an operation, which was done on June 14th. The external canthus was incised for the distance of an inch outward and the upper lid turned up on the eyebrow. The ocular conjunctiva was divided in the horizontal meridian from the internal canthus to the corneal margin. The tendon of the internal rectus muscle was divided and the eye turned strongly to the temple. The tumor could then be plainly seen on the inner wall of the orbit, its anterior aspect being flattened. By means of blunt hook and blunt-pointed scissors it was readily dissected from its periosteal adhesions and removed entire, with but trifling hemorrhage. It proved to be a long, flattened growth, the size of a large Lima bean, and was apparently entirely inclosed in a capsule. A careful examination of the orbit discovered no trace of any further growth, and the muscles and optic nerve seemed to be intact, though the latter was somewhat flattened. The cavity was then carefully washed out with a sublimate solution (1 to 2,000), the tendon of the internal rectus was stitched in place to the sclera, the conjunctiva brought together and closed over

the opening with sutures, and the slight wound in the canthus closed in the same way. The eye was then bandaged in the usual way. Not a drop of suppuration occurred, and the patient was discharged at the end of a week. The tumor was hardened and sections were carefully made in all directions. It proved to be entirely inclosed in a fibrous capsule, and was divided into several parts by fibrous trabeculae, which seemed to be prolongations inward of the fibrous capsule. The spaces between the trabeculae were filled with large and small round cells, with nucleus and granular contents. Regarded as a whole, the growth would be classed as a sarcoma, or possibly a fibro-sarcoma, as there were a few fusiform cells between the fibers of the trabeculae. The superior oblique muscle was not injured. The patient's vision slowly improved, so that at the end of a month he could count fingers at three feet from the eye, but beyond this it did not improve, and eventually the optic disc took on the appearance of gray atrophy. The patient was last seen in the autumn of 1884, a period of more than two years, during which there had been no return of the growth, and from the encapsulated condition of the tumor it is probably safe to conclude that it has not reappeared.

CASE VIII. *Fibro-sarcoma of the Sheath of the Optic Nerve and Orbit*.—Fanny S., aged seventeen, was first seen on September 24, 1884. Two years before she had suffered from an attack of meningitis, during which the vision of both eyes became affected, and has since grown slowly but steadily worse. She has been deaf in both ears for eight years, the cause being catarrhal inflammation of the middle ear extending from the naso-pharynx. The right eye began to protrude about a year ago, and the exophthalmus has slowly increased, but without any pain. When I saw her, the right eye protruded forward and outward and was limited in motion in all directions. The iris was moderately dilated and immovable. The fundus showed a gray, atrophic disc. Vision was  $\frac{2}{100}$ . There was marked engorgement of the subconjunctival and episcleral veins. The cornea was slightly cloudy from old keratitis. In the left eye the cornea was still more cloudy, and the iris was dilated above the normal and very sluggish. The optic disc was discolored on the temporal side and the retinal veins looked engorged. Vision was  $\frac{2}{100}$ . There was no exophthalmia and no limitation of motility. An examination of the naso-pharynx showed nothing abnormal beyond a general hypertrophy of the mucous membrane. There was no trace of any growth. When the right eye was pressed backward, a hard resisting mass was felt at the bottom of the orbit. A diagnosis of orbital tumor on the right side was somewhat hypothetical, and the patient was told that she must await developments. The exophthalmia slowly increased and vision slowly grew worse, but nothing absolutely certain was discovered until eight months had elapsed, when a growth was for the first time felt on the nasal side of the orbit. The patient was then told that an operation was necessary and that the eye must be enucleated, to which she consented. The eyeball was first removed in the ordinary way, great difficulty being met with in cutting the optic nerve; and, on examining the eye after removal, the whole nerve was found to be enveloped in a dense fibrous mass, showing that the tumor had been cut through. The entire contents of the orbit, including the conjunctiva, were then removed, considerable dissection being necessary around the optic foramen. The periosteum was apparently healthy except at the apex of the orbit, where it was much roughened from the adhesions to the growth. The latter measured about three quarters of an inch in length and was roughly molded to the shape of the orbit. The optic nerve passed nearly through its center and was decidedly flattened. The orbit was then washed out antiseptically and bandaged in the usual way. There was no defect in the orbital walls, and

no apparent prolongation of the tumor into any of the neighboring cavities. A careful examination of the growth, after hardening, showed that it mainly involved the sheath of the optic nerve, the nerve itself being but slightly encroached upon. It could not positively be decided whether the tumor had originated in the sheath or in the periosteum of the orbit. It extended forward upon the sclerotic for a short distance, this membrane being intimately involved in the pathological process. Sections through the tumor, both longitudinally and transversely, showed it to be composed almost entirely of connective tissue bundles, the fibers being densely pressed together. In some places between the fibers were a few fusiform cells. The nearer the optic nerve was approached the denser became the fibers. The cells in the perineural lymphatic space were increased in number and size. The optic nerve behind the eye and within the tumor was flattened and showed signs of interstitial neuritis. The optic disc and the immediately surrounding zone of the retina showed the traces of neuro-retinitis, but the rest of the eyeball, with the exception of the cornea, was normal.

The patient rapidly recovered and has been carefully watched since, but no return of the tumor has been observed. An interesting feature in the case is the possible, I might almost say the probable, connection between the preceding meningitis as a cause and the development of the orbital tumor as the effect. We know that complications on the side of the eye are by no means infrequent during or after the meningeal disease. The ocular complication is sometimes a purulent chorioiditis, but more often it is a neuro-retinitis, with or without papillitis. It is by no means an improbable supposition that, in the case just described, the intracranial inflammation extended along the membranes of the brain, involved the dural sheath of the optic nerve, and set up a hypertrophic vaginitis, which subsequently took on the form of a tumor of the optic nerve, or more properly of the nerve sheath, compressing the optic nerve and producing the exophthalmus.

**CASE IX. Cyst of the Orbit and Ethmoid Cells.**—On October 6, 1884, a young child, Jennie S., aged two years and a half, was brought to me by the mother, who gave the following history: About a year before, after an attack of bronchitis, the mother noticed a small swelling at the inner angle of the left orbit beneath the upper lid which caused the lid to protrude. This was much less marked when the child was lying down than when she was in an erect position. It had grown somewhat in size during the year. There had been no other symptom. When I saw the child there was a small circumscribed orbital growth at the upper and inner angle of the left orbit, beneath the upper lid and outside the periosteum. When the child sat or stood the protrusion occupied the region of the inner canthus above the lacrymal sac, but when she lay down it receded almost entirely from view. It felt elastic and I concluded it was an example of a retention cyst of the orbit. The tumor was punctured through the *cul-de-sac* beneath the lid, and a quantity of clear, straw-colored fluid escaped, and the cyst at once collapsed. I told the mother that the little tumor might return, but that the child was so young it might be better to wait and see whether any more serious operation would be necessary. For nearly three months there was no return of the cyst. Then it began to fill up again and soon regained its former dimensions. The mother also noticed that when the head was bent forward the swelling became much more prominent than ever before. I then determined to attempt the removal of the entire cyst, still regarding it as a retention cyst developed in the orbital tissue. The upper lid was strongly everted and the eyeball turned to the outer canthus and held there by a strong suture passed through the conjunctiva on the nasal side of the cornea, cross-

ing the cornea and passing through the skin of the external canthus. The *cul-de-sac* was then opened at the inner canthus and the cyst at once presented. It extended well up under the arch of the orbit and far back into the orbit, but seemed to hug the inner wall. Its attachments to the orbital tissue were very slight and easily broken, but on the side of the bone they were more firm, and in endeavoring to separate the cyst wall from one of these adhesions the sac ruptured and a large quantity of cloudy yellowish fluid escaped. The cyst collapsed and my finger passed into a large cavity. An examination showed that the orbital plate of the ethmoid bone and most of the lacrymal bone were absent and that the ethmoid cells formed one large cavity which communicated with the superior nasal meatus. This was proved by the fluid used in washing out the orbit and cavity in the bone passing down and out through the nostril. A drainage-tube was then inserted. The little patient did very well. There was hardly any suppurative, the drainage-tube was removed on the third day, and the child was discharged on the eighth day. There has been no return of the disease, but there was rather a marked sinking in of the tissues at the inner canthus and beneath the inner end of the orbit, so that there is a decided difference in the appearance of the two eyes.

If there had been a carious process in the bone which led to the disappearance of the inner wall of the orbit, there would almost certainly have been some general as well as local symptoms in the child during the process. For this reason I am more inclined to regard the case as one of congenital absence or arrest of development of the inner wall of the orbit, and the cystoid development in the cavity of the ethmoid and orbit as the result of a chronic catarrhal irritation of the nasal passages, perhaps connected with the bronchitis from which the child had suffered.

(To be concluded.)

## A CASE OF OTITIS MEDIA

DEVELOPING GRAVE SYMPTOMS OF BRAIN PRESSURE  
AND ENDING IN RECOVERY WITHOUT OPERATION.

By H. ELLIOTT BATES, M. D.,

POUGHKEEPSIE, N. Y.

INFLAMMATION of the middle ear—otitis media—is of interest not only to the otologist but also to the surgeon and general practitioner, from the fact that in a small but important proportion of cases it leads to results which render the diagnosis as important as it is often difficult and calls for prompt and usually operative treatment.

Cases of cerebral abscess occurring with or following otitis media are to be found in every standard medical journal. Mayo (*Northwestern Lancet*, February 15th), Pritchard (*Revue de laryngologie et otologie*, Paris, August 15th), S. Paget (*British Medical Journal*, May 16th), Gluck (*Archiv für Kinderheilkunde*, Stuttgart), have reported cases in which recovery took place after operation in all save the last. But a case which some time ago came under observation of the writer is unique, from the fact that although symptoms of so grave a nature as to lead to an unfavorable prognosis existed, yet the recovery took place without the aid of operative treatment.

The patient, a boy of fourteen, had always been strong and healthy, active and intelligent, with the exception of a discharge from the left ear which had existed for a long time.

Naturally good-tempered and obliging, he had been noticed

to have become peevish, fretful, and subject to fits of drowsiness, during which he would fall asleep even at the dinner-table. At such times it was seen that the discharge ceased. Several times he had flown into a passion upon a trivial irritation, complained of headache, ringing sounds in his head, and "spots before his eyes." This continued for over a month, when one day, while at school, upon being reproved by the teacher for some slight misdemeanor, he became furious, threw school-books about, and was only by force restrained from injuring his companions. A carriage was obtained and he was taken home. On the way he became comatose, with stertorous breathing and contracted pupils. A physician was called, who pronounced it a "rush of blood to the head," and prescribed rest and a small dose of calomel.

The boy slowly regained consciousness, but when seen by the writer was unable to move the right arm and leg. The skin was insensible to puncture with a needle; the contact of the needle with the skin was appreciated, but referred to the opposite side of the limb. Total motor paralysis existed. The face was flattened upon the right side, the eyelid drooped and could not be raised. Vision in the right eye was slightly impaired, the tongue deviated to the side, and taste upon the right half was dulled. There was evidence of incontinence of the sphincter. As the case was in charge of another physician, no treatment was prescribed except that the patient was placed upon his left side. Two days later he was found in a comatose condition, and only the prolonged use of a strong electric current restored him to consciousness. Soon after a sudden and profuse discharge of purulent fluid took place from the ear, the paralysis of the face and arm disappeared, and the boy began to get about on crutches. Slow but steady improvement followed, and when last seen by the writer he was engaged in "mowing away" a load of hay.

The symptoms were so grave as to give rise to an unfavorable prognosis by one of the physicians who saw it. An operation was declined by the family.

102 MARKET STREET.

**The Alumni Association of the Woman's Hospital** will hold its annual meeting at the New York Academy of Medicine on Tuesday and Wednesday, the 17th and 18th inst. The custom of reading papers has been superseded by a plan of assigning topics for discussion. Three topics have been chosen for the coming meeting: Pelvic Adhesions, The Treatment of Extra-uterine Pregnancy, and When should the Parturient Woman be allowed to assume the Upright Posture? Dr. Thomas Addis Emmet will read a paper in which he will give reminiscences of the consulting board of the Woman's Hospital. Dr. E. C. Dudley, of Chicago, will present a new operation for the cure of proclivity uteri. A new feature in the programme is the practical recognition of the fact that it is impossible to get a good attendance of New York men at a morning session. A number of prominent general surgeons have promised to make special efforts to have operations on the abdominal viscera to occupy the morning hours. This will be of the greatest interest and profit to those alumni who may not frequently see these gentlemen operate.

**The Columbian University in Washington.**—This institution is said to have withdrawn from the co-educational ranks for the alleged reason that the presence of women in the medical department had had the effect of keeping male students away. The university could not afford to become gradually transposed into a female seminary.

**The New York Ophthalmological Society.**—At the annual meeting, held on Monday, January 9th, the following officers were elected: President, Dr. W. F. Mitternuth; vice-president, Dr. W. S. Dennett; secretary and treasurer, Dr. Frank N. Lewis; committee on admissions, Dr. H. D. Noyes, Dr. C. E. Hackley, and Dr. David Webster.

## THE NEW YORK MEDICAL JOURNAL, *A Weekly Review of Medicine.*

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### THE EMPLOYMENT OF EPILEPTICS.

In an editorial paragraph, the *Lancet* remarks upon the establishment in England of a home for patients affected with epilepsy and similar disorders. Quite recently there has been opened at Godalming an institution called Lady Meath's Home of Comfort for Epileptics, and a benevolent organization to be known as the National Society for the Employment of Epileptics has been formed for the purpose of providing for needy epileptics who are able and willing to work, a part of the time at least, but are practically debarred from obtaining situations on account of their infirmities. A series of cottages, it is expected, will be occupied, each of which will accommodate from ten to twenty epileptics. The sexes will be separated, and children and adults will be kept apart. The institution will be conducted on a system similar to what has been so successful at the Bielefeld Epileptic Colony, and a beginning is soon to be made with a few male patients. Market-gardening and spade-and-barrow labor will be among the initial industries, but as the colony extends, other pursuits and even some of the mechanical arts will develop. It is hoped that in this way there will be a prospect of self-support, partial at first, growing with the growth of the institution. The colony or home will from the first be under medical supervision and without sectarian limitations. While it will be primarily for the benefit of the poor, the home will extend its advantages to patients with financial means, who will be received as boarders.

### MINOR PARAGRAPHS.

#### THE OUTLOOK AS TO INFLUENZA.

THERE have been some cases of influenza in New York since the middle of autumn, and the *Lancet* for December 31st announces that a number of persons have been attacked with the disease in Sheffield, that isolated cases have been reported from other places in England, and that London is not wholly free from it. The news of its recurrence in epidemic form in Kieff, Odessa, Kherson, Nicolaieff, and other places in southern Russia and of attacks in the more northerly parts of that country the *Lancet* takes as an unmistakable sign that the disease will prevail again in Great Britain this winter, although it regards it as highly improbable that it will attain to anything like the dimensions of its previous outbreaks. It is well to bear these considerations in mind with reference to the chances of recurrent epidemics in America.

#### QUACKERY PUNISHED IN GREAT BRITAIN.

AN American quack professing to be a graduate of the Cincinnati Eclectic Medical College, and advertising himself as a "great American physician" in certain Irish and Scottish cities,



has been convicted and sentenced to a term of eighteen months at hard labor. The charge was not made under the Medical Act, but simply for obtaining money under false pretenses. The quack was known as "Dr. Hale," and commonly had an associate or accomplice in the different cities that he visited. The man was brought to justice through the instrumentality of a medical practitioner of Dublin, who played the part of volunteer detective.

#### THE ADMINISTRATION OF QUININE TO NURSING WOMEN.

In the *Revue générale de clinique et de thérapeutique* for December 7, 1892, there is an article by M. Oui, who has experimented upon the influence of quinine on sucklings when it is given to the mother or wet-nurse. From an abstract of M. Oui's article given in *Lyon médical* for December 25th it appears that that observer has satisfied himself that only a minute proportion of the quinine administered passes into the milk—a proportion far too small to affect the child injuriously.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 10, 1893:

DISEASES.	Week ending Jan. 1.		Week ending Jan. 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	63	1	56	16
Typhoid fever.....	16	12	17	5
Scarlet fever.....	112	6	143	1
Cerebro-spinal meningitis.....	1	2	4	1
Measles.....	86	10	117	8
Diphtheria.....	132	63	154	42
Small-pox.....	2	1	1	1

**Columbia College.**—In the department of biology of the school of pure science, Mr. Edmund B. Wilson, Ph. D., adjunct professor of biology, will continue his course of lectures on The Cellular Basis of Heredity and Development as follows:

Thursday, January 19th, Cell Genesis and Division.

Thursday, January 26th, Egg and Spermatozoon. The Preparation for Development.

Thursday, February 2d, Physiology of the Individual Cell.

Thursday, February 9th, Intercellular Dynamics. Theories of Heredity.

Mr. Bashford Dean, Ph. D., instructor in biology, will give a course on The Origin and Evolution of the Fishes as follows:

Thursday, February 16th, The General Structure of Fishes.

Thursday, February 23d, Sharks and Rays—fossil and recent.

Thursday, March 2d, The Teleosts.

Thursday, March 9th, The Ganoids.

Thursday, March 16th, Chimera and the Lung-fishes. The New-bury collection of Giant Placoderms.

Thursday, March 23d, The Embryology of Fishes.

Mr. Arthur Willey, B. Sc., tutor in biology, will give a course on Amphioxus and other Ancestors of the Vertebrates as follows:

Thursday, March 30th, Introduction, History, Mode of Life, and Distribution.

Thursday, April 6th, General Structure.

Thursday, April 13th, Nervous, Vascular, and Excretory Systems.

Thursday, April 20th, Reproduction and Development.

Thursday, April 27th, Larval Growth and Metamorphosis. Relationships of *Amphioxus* to other Types.

These courses follow the lectures given by Professor Henry F. Osborn on The History of the Theory of Evolution, and, especially Mr. Wilson's, will be of special interest to physicians.

**The Proposed Colony for Epileptics in New York State.**—In accordance with the provisions of Chapter 503 of the Laws of 1892 making the State Board of Charities a commission to select a site and prepare plans for a colony for epileptics in the State of New York, this body on Wednesday, the 11th inst., made its report. The tract of land selected is the Shaker Colony near Genesee, in Livingston County. We quote the following from the board's printed report:

"*Sonyea Property.*—This property, situated in the Genesee Valley, about three miles from Mount Morris, in Livingston County, is owned by the Sonyea Society of United Christian Believers, the members of which have within a few weeks joined the similar society near Watervliet, N. Y. One of the original purposes of the society, many years ago, was to take and train children, some of whom would take the places of deceased members; but as the multiplication of orphan asylums in the regions round about has interfered with the supply of recruits to the society, of which one of the practices is celibacy, its present members are generally advanced in years and unable to continue its existence. Their expressed wish is to have the Sonyea property dedicated to some public work of a charitable nature.

"The land is in one tract comprising over eighteen hundred acres, traversed by two streams, one spring, brook, or creek issuing from springs which are situate principally on the premises, and the other, the Cashauque Creek, rising about thirty miles above, and flowing through the land in question, in a deep gorge with a fall of one hundred and six feet on the premises, dividing them into nearly equal parts. This gorge with creek is of immense advantage for the complete separation of the sexes in free colony life.

"A report from George J. Metzger, of Buffalo, a competent architect, showing general design and ground plans for new buildings and improvements to accommodate a population of six hundred, with future increase as indicated by the statute, is also filed in the office of the board.

"This report has been made by the architect under the supervision and approval of Commissioner Letchworth, of the committee, and Dr. Frederick Peterson, of New York city, who has on several occasions visited the site for inspection, and Albany and Buffalo for consultation, refusing all compensation for his time or services. Dr. Peterson is a specialist skilled in the treatment of epilepsy and nervous diseases, and acquainted with the colony for epileptics at Bielefeld, Westphalia, who has lately been consulted in the establishment of an institution for epileptics in the State of Ohio. His advice and co-operation with the board, from the beginning, have been of great benefit, and have been as freely accepted as given, inasmuch as Dr. Peterson would not suffer himself to be included in any list of possible candidates for the office of superintendent of the colony or any position of emolument relating to it.

"His written memorandum of his first inspection of the site, made at the request of the committee, with his conclusions, is in the form of a letter to the president of the board, dated November 1, 1892, and on file in its office.

"The soil is very fertile and easily tilled, inviting the light labors of invalid patients, for their own physical and mental benefit, as well as for their maintenance. It is of various qualities adapted respectively to grains, vegetables, and fruits. Mr. Alexander, one of the elders of United Society of Christian Believers, and a trustee of its property, states that in one year the society sold ten thousand dollars' worth of crops from the land, besides those consumed thereon by the community. On file in the office of the board is a written memorandum of statements made by Mr. Alexander. . . . This memorandum relates to the soil and crops considered in the foregoing, and to the stables and barns. These stables and barns are of magnificent proportions, and are substantially built upon approved plans. The other buildings are also on good foundations and are well built of good materials. They are of sufficient capacity, in the opinion of the committee and the board, to accommodate between three and four hundred patients at the present time.

"The buildings, which as represented cost about eighty thousand dollars, present two essential features—viz.: First. They are plain and

economical, though substantial and attractive, and afford an assured basis for future expenditures in buildings and improvements with due regard to economy, of which many State institutions have not been duly regardful. Second. The buildings include a chapel, or church, a schoolhouse, a structure adapted to an infirmary or hospital for cases coming directly and constantly under medical treatment or care, a laundry, a dining hall, and numerous cottages for dwellings, and shops for the teaching and profitable prosecution of trades, with the complete and extensive barns and stables already alluded to; and all the said structures and improvements are on the said statutory plan—namely, that of a colony.

"The healthfulness of the site and general sanitary conditions are attested by four affidavits, respectively of three physicians of high standing in the county and a member of the society, which are filed in the office of the board.

"The only disadvantage of the situation is its distance from the center of population. But this is more apparent than real on account of the excellent railway accommodations already mentioned; and, in the judgment of the committee and board, is overruled by the foregoing considerations, which make the site in all other respects not only relatively but absolutely good. The Sonyea property in its entirety far surpasses any of the other proposed sites; and from the nature of the case it must be unrivaled in any part of the State, and, except as to its relation to center of population, fulfills ideal conditions.

"*Recommendations and Conclusions.*—From the foregoing considerations and on general principles, and in pursuance of the provisions of chapter 503 of the Laws of 1892, the State Board of Charities respectfully submit to the Legislature the following recommendations and conclusions:

"I. There should be established in Livingston County in this State a colony for epileptics, to be known as the Sonyea Colony.

"II. There should be excluded from the colony, at least in its beginnings and formative stages, all insane epileptics, for two reasons—viz., First. Their presence would throw a cloud over the brightness and joyousness that should prevail so far as possible; and would set limits to the free life of the colony; and would tend to restrict commitments and intruments of non-insane patients. Second. Proper buildings and accommodations for insane epileptics would cost more than due provision for the insane at the existing State hospitals, inasmuch as there buildings and appointments for administration are already provided; and any saving to the State at the said hospitals by transfers of patients from them to the colony would be more than offset by increased expenditure at the colony.

"III. The objects should be to secure a community for the humane, curative, scientific, and economical treatment and care of epileptics, exclusive of insane epileptics; to fulfill which design there should be provided, among other things, a tract of fertile and productive land, in a healthful situation, with an abundant supply of wholesome water, sufficient means for drainage and disposal of sewage, and sanitary conditions; and there should be furnished, among other necessary structures, cottages for dormitory and domiciliary uses, buildings for an infirmary, a schoolhouse, and a chapel, workshops for the proper teaching and productive prosecution of trades and industries—all of which structures should be substantial and attractive, but plain, and moderate in cost, and arranged on the colony or village plan.

"IV. There should be a board of nine managers of the Sonyea Colony, appointed by the Governor, by and with the advice and consent of the Senate. The full term of office of each appointed manager should be eight years, after the first appointments; and the term of office of one of such managers should expire annually. To effect such order of expiration of terms of managers, the first appointments should be made for the respective terms of eight, seven, six, five, four, three, two, and one years. Appointments of successors, and of persons to fill vacancies occurring by death, resignation, or failure in attendance at meetings, should be made without delay. Failure of any manager to attend the whole of two consecutive stated meetings of the board should, at its election, cause a vacancy in his office. The qualifications of such managers should be as follows: Two of said managers should be well-educated physicians; one or two of the managers should

be women; and all of said managers should be citizens of the State and residents respectively as follows: One in each of the eight judicial districts of the State, with one additional manager for the city and county of New York; but no manager should reside in the town where said colony is located or in Livingston County, the object of such restriction being to prevent local influence for local expenditures of State money beyond general requirements or necessary uses. The managers should receive no compensation for their services, but should be allowed their reasonable traveling and official expenses, when duly verified and approved by an auditing committee of the board, and duly presented to the treasurer of the colony for payment.

"V. The board of managers, within sixty days from their appointment, should submit to the Attorney-General the land contract with option in the State, reported to the Legislature by the State Board of Charities at this session, and an official search and abstract of the title of the tract of land described in said contract, containing eighteen hundred acres more or less, lately occupied and owned by the United Society of Christian Believers, situate in Groveland, in Livingston County; and if such title shall be approved by the Attorney-General and certified by him to be good and free from incumbrance, the board of managers should, within thirty days thereafter, accept a good and sufficient deed of conveyance of said tract of land to the State, to be approved by the Attorney-General; and thereupon the treasurer of the State, on the warrant of the comptroller, should pay therefor, in manner to be provided, the consideration of \$125,000, with proportionate reduction for deficiency, if any, in the quantity of land, which is assumed in said contract to be at least eighteen hundred acres for said purchase price. Provided that if such title shall not be approved, or such deed with a good title free from incumbrance can not be secured, the board of managers should so soon as practicable report the facts to the Legislature.

"VI. Upon securing the conveyance of said tract of land to the State, with the approval of the Attorney-General as aforesaid, the board of managers should immediately put the premises thus conveyed into proper condition for reception of patients, and should receive them gradually and as rapidly as practicable, and for such uses and purposes shall utilize the present buildings and improvements upon said premises, and adopt a general design including the same and the recommendations in this report.

"VII. The act establishing the colony should contain, among other things, provisions prescribing the duties and powers of the managers, and of the officers, including a medical superintendent and a treasurer, neither of which two officers should be a manager; regulating the designation, commitment, reception, discharge, and support of public and private patients; apportioning State patients, and governing all the officers, assistants, inmates, and inhabitants of the colony. Such provisions are formulated in a bill which will be offered by the State Charities Aid Association and approved by the State Board of Charities.

"VIII. The act establishing the colony should appropriate the sum of one hundred and fifty thousand dollars or upward out of any moneys in the treasury not otherwise appropriated, and should provide that the treasurer of the State shall, on the warrant of the comptroller, pay to the treasurer of the board of managers of said colony such sums as may, from time to time, be required for the purchase of land, improvements and betterments, erection of buildings and furnishing the same, heating, lighting, and ventilating the same, and putting the lands and buildings into proper condition for the reception of patients and beneficiaries, not to exceed one hundred and twenty-five thousand dollars for the purchase of the land as hereinbefore stated, and not to exceed twenty-five thousand dollars for such other purposes; provided that such purposes and all requirements upon which such payments may be made should be certified to the comptroller by said board of managers in writing, specifying its items, the purposes for which the said sums are required, and should be verified by the affidavit of the superintendent and treasurer of the colony, and of the president and secretary and majority of the said board of managers, while other necessary sums for maintenance in the next fiscal year and during the residue of the present fiscal year, and for waterworks and sewers, and for extensions to meet the immediate capacity of six hundred patients as required in the act under

which this report is made, and future increase of population, as therein also directed, should be provided in the appropriation and supply bills of this and succeeding sessions of the Legislature.

"IX. The direct effect of the establishment of the colony would be the relief of a numerous class of sufferers, of which there are over five hundred in the almshouses of the State, and as many thousands in its families of the relatively poor and indigent; to promote which benefits, New York should be quick to follow where Ohio has taken the lead and precedence in this work of humanity.

"X. The indirect results of proper provisions for the medical treatment and education of epileptics, and their employment in the profitable prosecution of trades and industries and agricultural labors in colony life, would be to remove from the almshouses duties which they can not discharge; and to release poor and indigent families from their tendencies to become dependent upon charity, on account of their infirm members; and thus to promote a wise and true economy and public policy in the prevention of pauperism."

**The American Gynaecological Society.**—The secretary, Dr. Henry C. Coe, of No. 27 East Sixty-fourth Street, New York, has issued a circular stating that the next meeting of the society will be held in Philadelphia on Tuesday, May 16th, and it is hoped, he says, that the occasion may be a memorable one. The number of papers will be limited, so that those who propose to contribute are requested to announce the titles as early as possible, and to mention the day on which they prefer to read. Attention is called to the recent change in the by-laws permitting fellows to publish their papers in medical journals, provided that such papers also appear in the *Transactions*. As unnecessary delay in the printing of the *Transactions* has been caused every year by the failure of the secretary to receive papers promptly, he again reminds fellows of the rule that all contributions must be placed in his hands *before the close of the meeting*. There are now ten vacancies in the list of fellows.

**The New Haven, Conn., Medical Association.**—At the annual meeting, which was held at the residence of Dr. Francis Bacon on Monday evening, January 4th, the following officers were elected: President, Dr. Gustavus Eliot; first vice-president, Dr. H. L. Swain; second vice-president, Dr. O. T. Osborne; secretary and treasurer, Dr. Joseph H. Townsend; presidential committee, Dr. W. G. Daggett and Dr. W. W. Hawkes; finance committee, Dr. C. A. Lindsley and Dr. W. H. Carmalt. Since the last annual meeting one member, Dr. Henry Pierpont, has died, and eight new members have been added. The present membership is sixty-six. Meetings are held on the first Wednesday evening of each month. The average attendance during the past year was nearly sixteen. The building fund amounts to between twenty-two and twenty-three hundred dollars.

**The Medical Society of the County of Otsego, N. Y.**—At the semi-annual meeting, to be held at Schenectady on Tuesday, the 17th inst., under the presidency of Dr. C. H. Chesebro, an address will be delivered by the vice-president, Dr. George F. Entler, and papers will be read as follows: Hypnotics, by Dr. C. E. Parish; Cholera, its Home and its Visits to the United States, by Dr. O. W. Peck; The Old and the New, by Dr. E. W. Spafford; Physiological Culture, by Dr. H. Lathrop; and Brain Surgery, by Dr. B. A. Church.

**The Society of Medical Jurisprudence.**—The special order for the meeting of Monday evening, the 9th inst., was the annual address by the president, Dr. N. E. Brill, on The Return of Cholera and Federal Quarantine.

**The New York Academy of Medicine.**—At the annual meeting, held on Thursday evening of last week, Dr. D. B. St. John Roosa was elected president.

**The British Laryngological and Rhinological Association.**—Dr. Francke H. Bosworth, of New York, and Dr. von Schrötter, of Vienna, have been elected honorary fellows.

**Changes of Address.**—Dr. Albert C. Stanard, to No. 108 West Thirty-fourth Street; Dr. Reynold W. Wilcox, to No. 38 East Sixtieth Street.

**The City Hospital.**—Dr. W. C. Jarvis has resigned from the attending staff, and Dr. J. R. Hayden has been appointed to succeed him.

**The Death of Dr. Joseph Creamer, of Brooklyn,** occurred on the 6th inst., in the sixty-third year of his age. He was a native of Nova Scotia, but came to New York while he was yet a youth. He had been a surgeon of the police, county physician, and autopsy physician to the board of coroners. He was a man of wide experience in medico-legal contentions and a good witness at public inquests and trials. His son, Dr. Joseph M. Creamer, was elected a coroner of Kings County at the last general election. The deceased was for several years a visiting surgeon to the Eastern Hospital. His final illness was a broncho-pneumonia of only a few days' duration.

**The Death of Dr. Francis J. Young, of Bridgeport, Conn.,** president of the Fairfield County Medical Society, took place suddenly on the 5th inst. He was taken sick while attending as a guest the annual banquet of the Danbury Medical Society, and died soon afterward. He was an esteemed practitioner of Bridgeport, and president of the city board of health. He was fifty-seven years old, and had been a resident of Bridgeport for the greater part of his professional life, since 1866 when he took his medical degree at Yale.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 25, 1892, to January 7, 1893:*

TEN Eyck, BENJAMIN L., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Leavenworth, Kansas, and will proceed at once to San Antonio, Texas, and report to the commanding general, Department of Texas, for duty with the troops now in the field.

MERIWETHER, FRANK T., First Lieutenant and Assistant Surgeon. The leave of absence granted for seven days is hereby extended ten days.

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, will, upon his arrival at his station (Fort Sill, Oklahoma Territory) from leave of absence, proceed immediately to San Antonio, Texas, and report in person to the commanding general, Department of Texas, for temporary duty in the field with troops operating on the Mexican border.

TAYLOR, MARCUS E., Captain and Assistant Surgeon. By direction of the Secretary of War, two months' ordinary leave of absence is granted, to take effect upon the expiration of his present sick leave.

CRAMPTON, LOUIS W., Captain and Assistant Surgeon. The leave of absence granted is extended three months.

MERIWETHER, FRANK T., First Lieutenant and Assistant Surgeon, is relieved from further duty at Fort Adams, Rhode Island, and assigned to duty at Madison Barracks, New York.

WARE, ISAAC P., First Lieutenant and Assistant Surgeon, is assigned to duty at Fort Sill, Oklahoma Territory, until further orders.

POLHEMUS, ADRIAN S., Captain and Assistant Surgeon. The leave of absence granted for two weeks, on surgeon's certificate of disability, is hereby extended fourteen days, from December 30, 1892, on surgeon's certificate of disability.

#### Promotions.

ALDEN, CHARLES H., Lieutenant-Colonel and Deputy Surgeon-General, to be Assistant Surgeon-General, with the rank of Colonel, December 4, 1892, *vice* Heger, retired.

HARTSUFF, ALBERT, Major and Surgeon, to be Deputy Surgeon-General, with the rank of Lieutenant-Colonel, December 4, 1892, *vice* Alden, promoted.

MATS, LOUIS M., Captain and Assistant Surgeon, to be Surgeon, with the rank of Major, December 4, 1892, *vice* Hartsuff, promoted.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending January 7, 1893:*

PURTIANCE, GEORGE, Surgeon. Detailed as chairman of Board for Physical Examination of Passed Assistant Surgeon S. C. Devan. December 21, 1892.

GASSAWAY, J. M., Surgeon. To proceed to Gulf Quarantine on special duty. January 4, 1893.



- DEVAN, S. C., Passed Assistant Surgeon. To report for physical examination, December 21, 1892; detailed for special duty at Philadelphia, Pa., December 28, 1892; granted leave of absence for two months on surgeon's certificate of disability. January 7, 1893.
- KALLOCH, P. C., Passed Assistant Surgeon. To assume command of the service at Cincinnati, Ohio, when relieved at Boston, Mass. December 21, 1892.
- GLENNAN, A. H., Passed Assistant Surgeon. Leave of absence extended sixteen days on account of sickness. December 13, 1892. To proceed to New York for special temporary duty. January 3, 1893.
- WILLIAMS, L. L., Passed Assistant Surgeon. To proceed to Helena, Ark., on special duty. January 3, 1893.
- MCINTOSH, W. P., Passed Assistant Surgeon. When relieved, to proceed to Boston, Mass., for duty. December 21, 1892.
- MAGRUDER, G. M., Passed Assistant Surgeon. When relieved, to proceed to San Diego, Cal., on special duty; thence to New Orleans, La., for duty. December 16, 1892.
- COBB, J. O., Passed Assistant Surgeon. Upon expiration of leave of absence, to proceed to Port Townsend, Wash., for duty. December 21, 1892.
- STIMPSON, W. G., Assistant Surgeon. To proceed to Detroit, Mich., for duty. December 20, 1892.
- BROWN, B. W., Assistant Surgeon. To proceed to Port Townsend, Wash., for temporary duty. December 16, 1892.

#### Society Meetings for the Coming Week:

- MONDAY, January 16th: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.
- TUESDAY, January 17th: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Franklin (annual), Kings (annual), Otsego (semi-annual—Schenervus), and Westchester, N. Y.; Ogdensburg, N. Y., Medical Association; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Baltimore Academy of Medicine.
- WEDNESDAY, January 18th: New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico-legal Society, New York; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.
- THURSDAY, January 19th: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).
- FRIDAY, January 20th: New York Academy of Medicine (Section in Orthopedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.
- SATURDAY, January 21st: Clinical Society of the New York Post-graduate Medical School and Hospital.

## Letters to the Editor.

### THE OPHTHALMOMETER.

NEW YORK, December 30, 1892.

To the Editor of the New York Medical Journal:

SIR: It would appear from a letter under the title Ophthalmometry in America, by Dr. A. E. Davis, of this city, in the issue of the *Journal* for December 24, 1892, that the ophthalmometer of Javal and Schiötz was an instrument "forgotten" and "consigned to the limbo of obscurity" until rescued from oblivion by Dr. Roosa about three years ago. That Dr. Roosa has been an enthusiastic advocate of the ophthalmometer during the last two or three years is well known; but he is a comparatively recent convert, and his conversion is but the natural fruit

of the early missionary work of Dr. Noyes and Dr. Burnett. So recently as 1890, in an article entitled *The Relation of Errors of Refraction and Insufficiency of the Ocular Muscles to Functional Diseases of the Nervous System* (*Medical Record*, April 19, 1890)—an article in which great stress is laid on refractive errors—the ophthalmometer is only once casually referred to by Dr. Roosa.

Dr. Burnett was the pioneer in the use of the ophthalmometer in this country and is rightly characterized as its champion in the article of Dr. de Schweinitz referred to by Dr. Davis, and, if Dr. Davis will take the trouble to inform himself of the recent utterances of Dr. Burnett, he will find that he has by no means relegated his instrument to the "lumber room."

The instrument, however, has for the last seven years had no firmer friend or more staunch and persistent advocate and defender than Dr. Noyes, in whose office it has been in constant use since 1885, and where the ophthalmometric examination is as much a part of the regular routine examination as the ophthalmoscopic.

In the winter of 1885-'86 Dr. Noyes exhibited the ophthalmometer at a largely attended meeting of the New York Academy of Medicine, and from that time to the present he has continued to sound its praises and to commend it to scores of his fellow-practitioners, who have visited his office from all parts of the country, as an invaluable aid in the diagnosis of errors of refraction. Again, at the twenty-fourth annual meeting of the American Ophthalmological Society, in New London, July, 1888, in the discussion of Dr. Burnett's paper, *An Analysis of the Refraction of Five Hundred and Seventy-six Healthy Human Corneæ* examined with the Ophthalmometer of Javal and Schiötz, Dr. Noyes said: "It has been my habit to employ the ophthalmometer in every case where it was necessary to inquire into the state of the refraction. In a general way, I may say as follows: That the evidence of the ophthalmometer, without the use of atropine, has, in the immense majority of cases, corresponded with the evidence of the trial case. . . . This is an extremely practical and valuable instrument. It saves an immense amount of time, and, when one has learned to use it, gives very little trouble. I now scarcely know how to do without it. The examination with it is much more rapid and satisfactory than under former methods." Dr. Noyes has upheld the instrument before his classes at Bellevue Hospital Medical College and the New York Eye and Ear Infirmary, and from his book, *Diseases of the Eye*, 1890, I quote the following: "A little experience soon makes this method of working the most expeditious and the most satisfactory. The whole problem may often be solved at a single sitting and without atropine. For rapid work, and especially in public institutions, this instrument is invaluable."

This quotation is taken from a description of the ophthalmometer and its use in the work just referred to, pp. 121-124, and certainly its English is not so poor or its meaning so obscure or involved as to warrant the following passage in Dr. Davis's article: "That the new modeled instrument could have been popularized from a description of the old is out of the question. I doubt very much if the new instrument could be used at all from the description of the old, and I am sure it could not be correctly employed."

If Dr. Davis takes exception to Dr. Noyes's description on the ground that it applies to the old model instead of the new, it needs only to be said that the new model differs in no essential particular from the old, and that a description of one is perfectly applicable to the other. The only decided advantage of the large disc of the new model is that it forms a shield to protect the eyes of the observer from the light; but its place is just as effectually, if not better, supplied by a disc twelve inches

in diameter covered with black velvet, which Dr. Noyes has added to his (old model) instrument, and this, besides being less cumbersome, does away with the multiplicity of corneal reflexes, which are more or less confusing.

D. W. HUNTER, M.D.

#### NATIONAL QUARANTINE.

January 3, 1893.

To the Editor of the New York Medical Journal:

SIR: Referring to your editorial on The Question of a Nation Quarantine, in the *Journal* of December 24th last, I beg to remark that the desirability of a uniform system of national maritime quarantine in our country is hardly a debatable matter—it is conceded by all.

You think "there is no reason for establishing, as some have proposed, a national board of health, and still less a new department to be called the Department of Public Health under the charge of a secretary." But you think "the *Treasury* Department has already the *frame* upon which to build a *quarantine corps* of trained men in the Marine-Hospital Service."

In other words, the proposition seems to be practically to abolish the Marine-Hospital Service by transmuting it into a "Quarantine Corps," *alias* a United States sanitary scavenger service. The name, however, is not to be changed, for, if it were, certain statutes must be examined and perhaps repealed, which might not be agreeable to all.

As one of the older members of the endangered organization, your correspondent feels it to be his right and duty strongly to protest against this retrograde metamorphosis and proposed destruction of a time-honored and beneficent service.

If "an increased force and more money" be necessary to enable the executive officer of the Marine-Hospital Service to cause to be performed the "additional duties" you allude to, and this "increased force" is not to consist of medical officers of the Marine-Hospital Service—the *frame* on which the proposed new "corps" is to be built—then why not change the name of the chief officer and have a Secretary of Hygiene?

This would not "complicate the machinery of Government," but would simplify it, by continuing the Marine-Hospital Service in its legitimate rôle, with its "supervising surgeon," as now provided by statute; whilst the Secretary of Hygiene, being a person learned in all the arts and sciences pertaining to public sanitation, could intelligently and properly direct, under existing laws slightly modified, the new "force" in its highly necessary but exceedingly disagreeable labors.

Medical officers of the Marine-Hospital Service are not especially trained in sanitary affairs more than similar officers of other branches of the public service, and a large number of them are no more anxious or willing to lay aside their purely professional duties for those of sanitary policemen than are medical officers of the navy or army, or most physicians in private practice.

Omitting details, probably the best system of national quarantine would be to put the entire seaboard and land *frontier* quarantine service under the direction of a Government bureau *especially organized for that purpose*, under new and uniform laws and rules, with a new, thoroughly competent, and experienced chief, and newly appointed officers for *this particular duty*, leaving all *interior* and *inter-State* sanitary and quarantine matters to the management of the State and local boards of health, without interference by Federal officials.

Some remedies are worse than the disease, and the liberties and best interests of the people at large should be ever kept in view and not allowed to be jeopardized by personal ambitions.

SURGEON, M.-H. S.

## Proceedings of Societies.

### NEW YORK STATE MEDICAL ASSOCIATION.

*Ninth Annual Meeting, held in New York on Tuesday, Wednesday, and Thursday, November 15, 16, and 17, 1892.*

The President, Dr. JUDSON B. ANDREWS, of Buffalo, in the Chair.

(Continued from page 42.)

**Acute Pleurisy.**—Dr. FRANK S. PARSONS, of Northampton, Mass., read a paper on this subject. Reviewing the opinions of such French teachers as Guérin and Germain Sée, the author found that they looked upon inflammation as a physiological process to develop phagocytes against microbes, and considered pleurisy to be nothing more than a lymphangitis. Personally, he saw no reason for considering every pleurisy as dependent upon lesions of pre-existing maladies, especially of tuberculosis. Acute pleurisy was probably caused by microbes, and secondary pleurisies occurred for the most part in connection with diseases of microbic origin. Acute pleurisy was a well-defined cyclical malady, and might be divided into three periods of evolution of seven days each. The first period represented the time occupied in the increase of the pathological lesions, and at the end of that time the effusion reached its limit of advance. The next seven days represented the time during which the pathological lesions appeared to remain stationary, and the effusion underwent no perceptible alteration in quantity. From the fifteenth to the twenty-first day of the disease there was an absorption of the inflammatory products, including the effusion. In the modern treatment of acute pleurisy, three classes of agents were used—antiseptics, antipretics, and evacuants. Diuretics were the most useful, while purgatives not only failed to reduce the quantity of fluid, but were often dangerous. The indications for treatment were to relieve the pain, reduce the fever, and arrest the effusion. Antiphlogistic treatment was indicated just as much now as formerly, for revulsives removed the congestion at the same time that they relieved the pain, while opium merely deadened the sensibility to pain. M. Peter believed that early resort to revulsive methods often prevented or arrested the serious effusion, and called attention to the toleration of the system to free venesection and the rapidity with which it relieved pain and caused a diminution in the severity of the local symptoms of pleurisy. The author thought a lesson might be learned from Nature on this point, for she seemed to bleed the patient in acute pleurisy by causing an effusion of fluid which closely resembled the plasma of the blood. In sero-fibrinous pleurisy, aspiration should not be performed until after the third week, and then only if there was no indication of absorption. The only exception to this rule was where there was urgent dyspnea or other indication that life was in danger. The physical signs of the presence of fluid at the level of the second rib furnished the best guide. In purulent pleurisies in children aspiration should be performed several times before resorting to severer surgical measures, but in adults one trial of aspiration was sufficient. In conclusion, the author suggested endeavoring to secure the absorption of pleuritic effusions by electrolysis. An electro-puncture needle connected with the positive pole was to be inserted so as to just reach the effusion, and the negative pole being connected with a large clay electrode placed on the chest walls, a current of from thirty to fifty milliamperes was to be passed through the effused fluid. We might reasonably expect from such an application more or less coagulation of the fibrinous matter and absorption of the fluid portions of the effusion. Such a method of treatment would be specially applica-

ble where for any reason thoracentesis could not be performed, or where there had been repeated accumulations of fluid, or in secondary pleuritis of a tuberculous nature.

Dr. F. W. HIGGINS, of Cortland County, said the practice of venesection was theoretically good, but he had never happened to meet with a case of pleurisy in which he had thought this treatment was indicated.

Dr. H. D. DIDAMA said that by early and complete aspiration the lung was permitted to expand immediately. Tonic treatment was proper from the very beginning, and Anstie, who had recommended the administration of tincture of chloride of iron in all cases, had obtained better results from this tractment than from the use of antiphlogistics.

Dr. JOHN CROXN, of Erie County, said that in the early years of his practice, when he had bled freely and administered large doses of opium with calomel, his cases of pleurisy had given him very little trouble. He also favored early aspiration.

Dr. NELSON B. SIZER, of Kings County, recalled a case of acute pleurisy with violent initial symptoms in which the disease had been aborted by prompt venesection.

**The Ætiology of Gastric Ulcer.**—Dr. CHARLES G. STOCKTON, of Erie County, read a paper in which he said that, while undoubtedly the stomach became ulcerated from a variety of causes, such as traumatism, syphilis, scurvy, serious blood changes, extensive burns, and continued pressure, the simple round ulcer of Cruveilhier, which occurred oftener in young women, must have a more precise and definite ætiology. There had been a very general acceptance of the view expressed long since by Virchow, that ulceration followed hemorrhagic erosions resulting from disturbance of the circulation, due for the most part to morbid conditions of the gastric vessels, and particularly to a hemorrhagic necrosis of the mucous membrane. This mode of formation was substantiated by clinical and pathological observations and by laboratory experiments. Duodenal ulcer not infrequently followed external scalds and burns, and severe injuries inflicted experimentally on animals had been followed by ulcers in the stomach, so that Niemeyer had suggested that the nervous system might possibly take part in the process. The experiments of Schiff and Ebstein seemed to show that certain parts of the nervous system were competent to establish *ulcus ventriculi*. Although a large proportion of cases of gastric ulcer were associated with diminished alkalinity of the blood and hyperacidity of the gastric juice, there were cases on record in which the acidity of the gastric juice had even been below the normal. These facts showed that there must still be some other cause as yet unknown, which in a certain group of cases led to local necrosis, for the affection showed itself particularly in adolescence, when there was the least probability of vascular changes; it occurred most frequently in women, who were less often subjects of arterial disease than men, and the ulcer very frequently selected for its site the lesser curvature and posterior wall of the stomach, near the pylorus, a portion of the economy not often invaded by embola, and a region of the stomach which was especially rich in anastomosing vessels. It seemed not at all improbable that this form of ulcer might take its origin in some unknown but definite neuropathic change—trophic, vaso-motor, or both—for analogous processes might be observed in other parts of the body. For instance, it was well known that herpetic eruptions were very prone to occur at particular points under special conditions, and that strange disease known as “idiopathic hæmatoma auris,” according to recent investigation, was of neuropathic origin. In conclusion, the author said that the object of his paper was to suggest that by the influence of some process analogous to herpes, or to idiopathic hæmatoma auris, or to Raynaud’s disease, or to herpetic gangrene, we might best explain the recognized but

unaccounted-for feature of the clinical history as regarded location, age, and sex.

**The Examination and Commitment of the Insane in New York County.**—Dr. MATTHEW D. FIELD, of New York County, read a paper thus entitled. The present reception pavilion for the insane was erected at Bellevue Hospital in 1879. When he was first appointed Examiner in Lunacy, in 1882, the percentage of discharges was over thirty-three, but, owing to the exercise of more care in excluding improper cases, this had been greatly reduced. Only three times within these ten years had a case been registered at the asylum as “not insane,” and never to his knowledge had a discharged patient during this time committed any outrage against the community. There was no reason to look with suspicion on every case, and therefore, as Nellie Bly had come to them after due commitment by a police justice, and during the whole time of her stay in the pavilion had acted irrationally and would give no information concerning herself or friends, she could not be discharged.

The PRESIDENT said that he could fully appreciate the difficulties met with in regard to communicating with the many foreigners who came up for examination as to their sanity, and then, again, many of these people acted so strangely, even when sane, that it was no easy task to know just where to draw the line, or, if they had been insane, to tell when they had recovered. The statistics presented by Dr. Field showed a degree of skill in diagnosis far superior to that seen in ordinary medical practice.

Dr. FIELD said that such a reception pavilion not only took these unfortunates from the unpleasant surroundings of jails, but it materially assisted the work of the examiners, as during the intervals of their visits the conduct of the patients was carefully observed by skilled attendants.

**Mitral Stenosis in Pregnancy.**—Dr. ZERA J. LUSE, of Wyoming County, reported two cases in which mitral stenosis had seriously complicated pregnancy. In his opinion, the physician should make it an invariable rule to examine the heart in every case of pregnancy coming under his care, and, where mitral stenosis was present, the only safe treatment prior to the fifth month was the production of abortion. It was about the sixth month that the heart showed marked signs of weakness, and if the pregnancy was allowed to proceed, it was probable that the fetus would not survive the last two months. It must be remembered that children whose mothers were the victims of cardiac disease were often imperfectly developed and were predisposed to an untimely death. If the patient was not seen before the sixth month, she must be kept absolutely at rest and under the constant care of a physician. When collapse occurred in the cases reported, chloroform was cautiously administered until its stimulating effect was produced, and this measure not only resulted in immediate improvement of the symptoms, but it gave an opportunity for other medication.

Dr. F. W. ROSS said there was fully as much danger in abortion as in allowing a woman to go to full term. These cases did well, as a rule, even though to all appearances quite unfavorable.

Dr. JOHN CROXN said that the cases reported were instances of collapse occurring with an irritable heart, and the chloroform had acted favorably because it had allayed this irritability. He could indorse the whole treatment except the use of digitalis.

Dr. F. W. HIGGINS thought that, as the latter months of pregnancy were the more dangerous, if labor could be induced while the patient was still strong, the result would probably be more favorable.

Dr. S. T. ARMSTRONG, of New York County, said that he



had had under observation for the past ten years a lady who, although having a mitral stenosis before her first pregnancy, had been pregnant five times, and yet there had been but very little increase in the stenosis. Her last child was a healthy boy of sixteen months. He agreed with Dr. Cronyn in condemning the use of digitalis.

**The Use of Electricity in Midwifery.**—Dr. OGDEN C. LINTON, of New York County, read a paper this entitled. The term "electricity" was used in this paper as synonymous with the faradaic current, and the more important uses of this form of electricity were considered under three heads—viz., (1) its sedative action, (2) its oxytocic action, and (3) its power to prevent and to control uterine hemorrhage. It was useful where chloral or morphine was contraindicated, on account of idiosyncrasy or debility, or where it was not considered prudent to push the use of these drugs further. It was also available where the stomach was too irritable to retain medicine, and, unlike morphine or chloroform, it did not interfere with the progress of labor, but, on the contrary, excited more powerful and efficient uterine contractions, at the same time that it quieted the general nervous irritability. As it did not favor uterine relaxation, its administration did not complicate subsequent operative procedures under anesthesia. When this sedative action of the current was desired its strength was carefully adjusted so as to be distinctly perceptible to the patient, but not painful. It was important that the vibrations of the contact-breaker should be smooth and rapid, and that the current should be continuously applied for ten or fifteen minutes. Its power to excite and to stimulate uterine contractions was one of its most certain actions, and hence it was indicated in every case of tedious labor in which the delay was due to feeble or infrequent contractions, or where, owing to a slight disproportion between the fetal and maternal parts, unusual muscular exertion was required to expel the child. It produced a "steady effect" on the uterine contractions when they were severe and almost incessant, making them less frequent and at the same time more efficient. The action of ergot was slow and uncertain in degree; faradization produced its effect instantaneously, and the amount could be accurately gauged. Ergot exerts its influence for a variable length of time, which was entirely beyond control; faradization acted upon the uterus for just so long a period as the operator desired. Ergot produced a tonic cramp of the uterine muscle, which necessarily exhausted the mother and was dangerous to both mother and child; faradization produced a steady, rhythmic contraction, which allowed a proper interval of rest to the uterine muscle and closely imitated Nature's method. By virtue of its power to excite uterine contraction, the faradaic current was also of service where there was moderate post-partum hemorrhage. The current was best applied to the patient in all cases with the positive pole over the sacro-lumbar region and the negative on the abdomen, the only precaution being to avoid passing the current directly through the head of the child. The positive pole was a small copper plate covered with wet absorbent cotton and fastened to the body by a belt or bandage. The negative pole was a flat sponge backed with rubber, or, preferably, the operator's hand. The author then cited several cases showing where this agent had succeeded, and where it had failed to give assistance.

**The Role of Microbes in Disease** was the title of a paper by Dr. NELSON B. SIZER, of Kings County. It was devoted to a consideration of our recent knowledge concerning some of the more important bacillary diseases.

**Some Personal Observations upon the Treatment of Alcoholism, and the Known Effects of Alcoholic Abuse upon Posterity.**—Dr. H. ERNST SCHMID, of Westchester County, in a paper thus entitled, said that alcohol, when prescribed for chil-

dren, not infrequently caused convulsions; its effect was transient, and, even when given in small doses, was soon followed by relaxation. Medicinally, it was only indicated in conditions approaching collapse. Tea and coffee, particularly the former, were the agents *par excellence* to sustain strength in muscular and mental labor. Tea had been the chief beverage of those who had gone on Lieutenant Peary's polar expedition, and now alcohol was entirely excluded from the quartermaster's supplies for such expeditions. Physicians objected to children being fed on milk from swill fed cows, but they very frequently advised nursing women to drink beer to increase their supply of milk. Careful and competent observers had noticed a relation between this practice and the development of true imbecility or even idiocy in children. He considered heredity an important element, and narrated many instances exemplifying this. For example, in the case of a man who became a drunkard after middle life, the children born to him before his degradation remained free from drunkenness, while those born afterward in turn became drunkards. A well-known specialist in diseases of children had observed ten families of drunkards and ten of temperate persons for a period of twelve years, and found that during this time the drunkards had fifty-seven children, only ten of whom showed during their youth a normal disposition and development of body and mind; while sixty-one children were born to the temperate parents, fifty of whom developed normally. The author closed his paper with an earnest appeal for the co-operation of the association in endeavoring to induce the Legislature to legalize the commitment of drunkards and to provide a special institution for them.

**Climatology in its Relation to Disease.**—Dr. S. J. MURRAY, of New York County, read a paper in which he said he considered the health resorts of our own land preferable to those abroad, because the invalid could readily find congenial company with less change of customs and habits of life. The Adirondack region possessed qualities which should make it the most famous health resort in the world. Among the desirable places in southern California, none was better than San Diego, as the temperature was equable and the air dry. Where a greater altitude was desired, this could be best found in the Rocky Mountains of Colorado. In the Southern States there was perhaps no better all-the-year-round place than Asheville, N. C., which combined a healthful climate, beautiful scenery, and excellent hotel accommodations. On the Cumberland plateau of Tennessee was to be found one of the most remarkable climates for phthisical patients. Notwithstanding that the natives of this region lived on corn-bread, bacon, coffee, and tobacco, careful investigation by the physicians who had practiced there for years showed that pulmonary consumption did not exist among them. For the majority of phthisical patients, the writer thought, a pure and dry atmosphere with plenty of sunshine was most desirable. The climate of southern California was the best adapted for the relief and even for the cure of hay fever; those suffering from nervous debility required the invigorating air of the mountains and seas, while for rheumatics and those afflicted with Bright's disease a climate should be selected which was as near as possible a perpetual spring.

**Some Recent Experience in Renal Surgery** was the title of a paper by Dr. E. D. FERGUSON, of Rensselaer County. From the three cases which he reported, he concluded that it was not always best to follow the rule generally laid down to perform nephrectomy as a secondary operation. Nephrotomy was a simple procedure, and would usually prolong life, but, if the renal tissue was extensively destroyed, and if the patient's condition was such as to admit of nephrectomy, this should be the primary operation.

In addition to the papers already mentioned, the following

were read, most of them by title: Muscular Traction for Hip-joint Disease, by Dr. T. M. Ludlow Chrystie, of New York County; A Review of some of the Injuries of the Upper Extremities, by Dr. E. M. Moore, of Monroe County; Fractures of the Patella treated by Continuous Extension, Patients not Confined to Bed, by Dr. Joseph D. Bryant, of New York County; Antiseptic Vaginal and Intra-uterine Injections Unnecessary, if not Injurious, in the Daily Practice of Midwifery, by Dr. Darwin Colvin, of Wayne County; Abdominal Hysterectomy for Myoma, by Dr. Frederick A. Baldwin, of New York County; Tumors of the Orbit and Adjacent Cavities, by Dr. Charles Stedman Bull, of New York County; Winter Cholera in Poughkeepsie, by Dr. James G. Porteous, of Dutchess County; The Limit of Responsibility in the Insane, by Dr. John Shady, of New York County; Shall we treat Fever? by Dr. S. T. Armstrong, of New York County; Dermic and Hypodermic Therapeutics, by Dr. S. F. Rogers, of Rensselaer County; and A Memorial of Abram Du Bois, M. D., by Dr. S. S. Purple.

Dr. S. B. W. McLeod, of New York County, was elected president for the ensuing year.

### Book Notices.

*Text-book of Nervous Diseases*, being a Compendium for the Use of Students and Practitioners of Medicine. By CHARLES L. DANA, A. M., M. D., Professor of Nervous and Mental Diseases in the New York Post-graduate Medical School and in Dartmouth Medical College. With Two Hundred and Ten Illustrations. New York: William Wood & Co., 1892. Pp. xii + 524.

THIS is one of the useful and important books of the year, designed to present the science of neurology in a concise yet, as far as possible, complete form. Between its covers an almost incredible amount of information is compactly arranged by means of condensed tables and notes, and by a critical description of each morbid condition and its treatment, together with distinct chapters on anatomy and cranio-cerebral topography, and over two hundred illustrations.

Part first contains a general description of the nervous system, its anatomy and diseases, and the method of studying neurology; the general symptomatology and technical terms; the physiognomy and stigmata; and the causes, pathology, treatment, and prophylaxis of nervous disorders. The second part treats of diseases of the cerebro-spinal nerves, of those of the cranial nerves, and of those of the spinal nerves. Part third deals with the anatomy, the physiology, and the diseases of the spinal cord, its inflammations, degenerations, and functional disorders, with tumors and cavities of the cord, and with progressive muscular atrophies and dystrophies that pathologically belong to the cord. Part fourth is a survey of cerebral anatomy, physiology, and localization; of malformations, degenerations, scleroses, and tumors of the brain; and of cerebral syphilis. Part fifth is a condensed exposition of functional nervous diseases and their treatment. This is of special value to the general practitioner, who is so often called upon to treat functional nervous disease. It considers the degenerative neuroses, such as epilepsy, hysteria major, general spasmodic ties, etc.; the acquired neuroses, such as neurasthenia and exophthalmic goitre; the acquired degenerative neuroses, such as paralysis agitans and tic douloureux; the trophic and vaso-motor neuroses, such as progressive facial hemiatrophy, acromegaly, and aneioneurotic oedema; and the disorders of sleep.

The definitions in the first part of the book are invaluable to the student and to the general reader of medicine, notably for clearness, brevity, and directness. Methods of examination are carefully explained, without excess of minute detail. In the chapter on hygiene, prophylaxis, and treatment, very sensible directions are given concerning the best uses of water, food, massage, exercise, electricity, and climate. The introduction to each special section of the book presents the subject at large in its most modern aspect, and gives a clear outline that is easily remembered. The definitions of the diseases themselves are felicitous in form and as brief as circumstances permitted. Each division of every subject is arranged according to a regular order that prevents the possibility of any confusion. The chapters on the anatomy and physiology of the brain and spinal cord are marvels of *multum in parvo*. Directions for treatment are the results of close observation and personal experience, together with careful study and a knowledge of the fact that the physician is the doctor of the soul as well as of the body.

In certain directions the author does himself injustice, notably in regard to the index. It is disappointing and inadequate. This impairs the usefulness of the book to the general reader and impedes the student's progress. The ordinary mind soon wearies of forcing itself through any mass of information upon a serious subject, and requires a guide to point out regions best suited to its nature and its needs. Such a guide is a good index, and this book has it not. Until this deficiency is made good, it is unreasonable to expect that the author's work and power will meet with the general recognition that they both deserve, and which is their manifest destiny. The publisher is also unkind to himself. With the exception of the bright and attractive binding, nearly all that pertains to the making of the book fails in dignity worthy of the subject. The illustrations are for the most part coarsely reproduced, and many are indistinct. The paper is indifferent and the print poor. It seems inexcusable to present sentences that begin with fair type and run into smaller and irregular print before a period is reached. Such inequalities add materially to the fatigue of study. But these shortcomings are easy to remedy in a second edition.

As the book stands, it contains about all the information that human ingenuity could possibly condense into the same space. The author is of wide mind and willing to learn of the humble as well as the great, and gives due credit to both alike. Nowhere has anything been taken bodily from the German and foisted upon the English-speaking public. Each division has grown organically, and is the result of careful clinical observation, painstaking research, cautious judgment, and logical deduction. The book is clear, concise, and modern, yet sufficiently conservative, and merits gratitude and praise.

### BOOKS, ETC., RECEIVED.

*The Diseases and Deformities of the Fœtus: an Attempt toward a System of Ante-natal Pathology.* By J. W. Ballantyne, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Diseases of Infancy and Childhood, Minto House School of Medicine, Edinburgh, etc. With Plate and other Illustrations. Volume I. Edinburgh: Oliver and Boyd, 1892. Pp. xiii+252. [Price, 10s. 6d.]

*A Manual of Clinical Ophthalmology.* By Howard F. Hensell, M. D., Lecturer on Ophthalmology in the Jefferson Medical College, and James H. Bell, M. D., lately Demonstrator of Anatomy in Jefferson Medical College. With One Hundred and Twenty Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xiv+9 to 231. [Price, \$1.75.]

*Fermentation, Infection, and Immunity. A New Theory of these Processes, which unifies their Primary Causation and*

places the Explanation of their Phenomena in Chemistry, Biology, and the Dynamics of Molecular Physics. By J. W. McLaughlin, M. D., Austin, Texas. Austin: Eugene von Boeckmann, 1892. Pp. 8-9 to 240. [Price, \$2.50.]

Études de clinique chirurgicale. Année scolaire 1890-1891. Par A. Le Dentu, professeur de clinique chirurgicale à la Faculté de médecine de Paris. Avec trente-six figures dans le texte. Paris: G. Masson, 1892. Pp. xi-302.

Human Embryology. By Charles Sedgwick Minot, Professor of Histology and Human Embryology, Harvard Medical School, Boston. Four Hundred and Sixty-three Illustrations. New York: William Wood and Company, 1892. Pp. xxii-815.

The Modern Antipyretics; their Action in Health and Disease. By Isaac Ott, M. D., Easton, Pa. Second Edition, revised and enlarged. Easton: E. D. Vogel, 1892. Pp. 5 to 124.

A Report of Five Cases of Chronic Mercurial Poisoning. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *Medical News*.]

Two Cases of Fracture of the Body of the Scapula. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *American Locomot*.]

Fistula in Ano—General Considerations—Etiology—Symptomatology—Diagnosis—Prognosis. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *Medical and Surgical Reporter*.]

The Treatment of Anal Fissure, or Irritable Ulcer of the Rectum. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *Medical News*.]

The Operative Treatment of Fistula in Ano. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *International Medical Magazine*.]

Conclusions regarding the Use of Drainage-tubes and Ligatures, and the Possibilities of Skin Disinfection based upon Bacteriological Investigations. By Hunter Robb, M. D., Baltimore. [Reprinted from the *American Journal of Obstetrics*.]

Chancere of the Mouth, with Statistics and a Report of Twelve Cases, Three occurring in Children in One Family. By E. Harrison Griffin, M. D. [Reprinted from the *Medical Record*.]

Congenital Chorea. Two Cases. By John Dunn, M. D., Richmond, Va. [Reprinted from the *Virginia Medical Monthly*.]

A Case of Metastatic Abscess of the Brain. Operation—Death. By G. L. Walton, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

The Weight of the Body in its Relation to the Pathology and Treatment of Clubfoot. By A. B. Judson, M. D. [Reprinted from the *Boston Medical and Surgical Journal*.]

The Results of Expectant Treatment in Three Hundred and Twenty-three Cases of Typhoid Fever. By Arnot Spence, M. D. [Reprinted from the *Medical Record*.]

The Palliative and Operative Treatment of the Enlarged Prostate. By W. N. Wishard, M. D., Indianapolis. (Read before the Indiana State Medical Society, June 12, 1892.)

Perineal Operations on the Prostate, with a Brief Report of a New Method of removing the Lateral Lobes. By W. N. Wishard, M. D., Indianapolis. [Reprinted from the *Journal of Urotaeoue and Genito-urinary Diseases*.]

The Use of Menthol through the Stomach Tube. By A. L. Benedict, M. D. [Reprinted from the *International Medical Magazine*.]

Transactions of the Medical Society of the State of North Carolina. Thirty-ninth Annual Session, held at Wilmington, N. C., May 17, 18, and 19, 1892.

Les formes cliniques du choléra pernicieux dans l'épidémie juxta-Parisienne et Parisienne de 1892. Par le Dr. L. Galliard, médecin des hôpitaux. [Extrait des *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*.]

## Miscellany.

Gynæcological Technique as carried out at the Gynæcean Hospital, Philadelphia. —At a meeting of the Philadelphia County Medical Society held on December 28, 1892, Dr. J. M. Baldy read a paper substantially as follows:

It is no uncommon thing to have physicians from all over the country, who are making a temporary stay in Philadelphia and who are visiting the hospital with the object of seeing operations, question minutely as to the different points in the preparation, and not infrequently express surprise at the simplicity of these. In fact, it has often occurred to me that many of our visitors are more interested in the preparation than in the operation itself. To one who has the success of this class of work at heart, this seems to be a step in the right direction, as it has long since been recognized by the successful operators of the world that more good results are obtained by mediocre operators whose preparations have been most careful and systematic, than by their more brilliant colleagues who have been inclined to scoff at minutiae and to depend upon their mechanical skill.

From time to time articles on this subject have appeared in medical print giving the most elaborate description of the preparation and the apparatus used, most of which are undoubtedly excellent and well fitted for the operating-room of a hospital, but which are unnecessarily cumbersome when one comes to apply them to private work. For this reason I have been encouraged to enter upon a detailed description of our work at the Gynæcean Hospital, the application of which can readily be carried into private practice. The watchwords from the beginning to the end of an operation are *thoroughness and simplicity*.

The aim of all successful operators is the same—namely, the prevention of any septic matter entering into the field of operation. Different operators adopt different methods of accomplishing this object, but for success, the object and result must be the same, whatever the method adopted may be.

*Antisepsis or asepis*, as fancy may dictate, the principle is the same. To be successful one must be surgically clean. For the proper accomplishment of this one must consider and treat: 1. The patient. 2. The operating-room and its paraphernalia, including tables, basins, pitchers, buckets, instruments, ligatures, sponges, dressings. 3. The operator, assistants, and nurses.

The preparation of the patient should begin, when possible, at least twenty-four hours before the operation. The first steps are to regulate the diet and empty the gastro-intestinal tract. Free purgation is begun at once, preferably by the use of some saline. This is usually administered in the dose of a drachm of sulphate of magnesium, dissolved in water, each hour until the bowels begin to move. Usually five or six doses are sufficient to accomplish the object. The purgatives should be so administered that the action of the bowels ceases five or six hours before the time set for the operation. After beginning the administration of the purgative, the diet should be light and concentrated. If the operation is to be performed in the afternoon, the patient's supper on the day before consists of the ordinary house diet. From this time on nothing passes her lips, unless it be a glass of milk or a cup of bouillon at breakfast-time. Even water, except in small quantities, is withheld. These steps in the preparation can be carried out in the case of most patients, but in dealing with an unusually weak woman considerable judgment must be used in their application. A hot bath is given, both the day before and the morning of the operation. If the patient is unable to be moved to the bathtub, the baths are given in bed. Prior to the final bath an enema of soapuds and water and a vaginal douche of bichloride of mercury (1 to 3,000) are given. Immediately on coming from the bath a fresh night-gown is put upon the patient and she is placed in a bed which has been specially prepared for her reception. After her return to bed the abdomen—the seat of the operation—is especially prepared. A nail-brush, soap, and hot water are used freely and vigorously, special attention being paid to the umbilicus and pubic hairs. In but exceptional cases is the pubes shaved. The abdomen is then bathed with



alcohol and turpentine, and is finally protected until the time of the operation with a towel wrung out of bichloride solution.

When the patient is placed on the operating-table the abdomen is well rubbed with ether and bathed with alcohol by the operator as the final preparation, special attention being paid to the pubic hairs and the umbilicus. The legs are wrapped in a blanket, which extends from the feet to the pubes; a second blanket is placed over the chest. All blankets, clothing, table, etc., about the patient from her chest to her feet are now covered with towels prepared for the purpose, the abdomen being left bare from the epigastrium to the pubes. Over all this is placed a piece of bichloride gauze with a slit in it at the point of the incision.

All tables used in the operating-room, with the exception of the Krug frame for Trendelenburg's posture, which is of galvanized iron, are made of wood, perfectly plain, and shellacked. The reason for this is twofold—first, because it is desirable in the preparation of the room that it should be emptied; this is rendered possible in the case of everything except the gas fixture and the sink. Secondly, as there is an operating-room on each floor, it becomes necessary, to frequently move the tables from one room to the other. When not in use, the windows in these rooms are always open. The walls of the room from floor to ceiling are of white tile, the window trimmings are of white marble, the floors are asphalt, the ceilings are plastered and heavily painted. In the preparation, the room is first stripped of all its furniture. The walls, ceiling, and floor are washed down with a hose, and then mopped off with a cloth dipped in bichloride solution. As each article is brought into the room it is scrubbed with soap and water, rinsed off, mopped with bichloride solution, and placed in its proper position; the tables and benches are covered with sheets or towels specially prepared for this purpose. A glance at the accompanying cut will more clearly demonstrate this. All linen used in the operating-room has been laundered by itself. Distilled water is used throughout the operation.



After an operation the instruments are thoroughly scrubbed with soap and water, and are then passed through scalding water before being returned to the case. Prior to the operation they are boiled for twenty minutes in a weak soda solution. As few instruments as possible are used. In an ordinary operation, two needles, two ligature staffs, four hæmostatic forceps, a knife, a needle-holder, and a pair of scissors are amply sufficient. These are taken, together with the tray on which they are placed for boiling, directly from the sterilizer, and put upon the table as the patient is brought into the room. In this way they are not handled from the time they are taken out of the sterilizer until they are to be used.

Three varieties of ligatures are employed—silk, silkworm-gut, and catgut. A half-hour before the operation the silk is immersed in a bichloride solution (1 to 100); prior to being used it is washed in boiling water. The silkworm-gut is boiled with the instruments. The catgut is prepared by being immersed in ether for forty-eight hours, soaked for the same length of time in a 1-to-100 alcoholic solution of bichloride of

mercury, after which it is put into a solution of two parts of oil of juniper and one part of alcohol. It is taken directly from the latter solution for use at the operation.

All sutures and ligatures used within the abdominal cavity are of silk (Chinese twist). Silkworm-gut is invariably used for closing the abdominal wound. Catgut is used principally in vaginal hysterectomy and plastic work.

New sponges are prepared by being thoroughly beaten and soaked for twenty-four hours in a weak solution (three per cent.) of hydrochloric acid, after which they are soaked for twenty-four hours in a strong soda solution, and finally placed in alcohol. Immediately after being used in an operation they are thoroughly washed in cold water, placed in a strong soda solution (practically a saturated solution) for twenty-four hours, at the end of which time they are removed, washed under the cold-water spigot until all the soda is washed away, and then immersed in a solution of sulphurous acid for twenty-four hours. They are taken directly from the acid solution, washed, and placed in commercial alcohol until used. Four sponges only are used at each operation.

The dressing of the abdominal wound consists in placing several strips of dry bichloride gauze over the incision and a cotton pad covered with gauze placed over this. The whole is held in place by a six-tailed bandage. Dressings are not disturbed for eight days. No iodiform or other powder is used. Stitch-hole abscesses are the rare exception.

After being used, the glass drainage-tubes are soaked in strong soda solution for twenty-four hours, rinsed under the spigot, washed with turpentine and ether, and then boiled for twenty minutes, after which they are kept in commercial alcohol.

Rubber drainage-tube, whenever used, is soaked in bichloride solution, and washed in boiling water.

After an operation the drainage-tube is cleaned by the nurse every fifteen minutes or half-hour, as occasion requires. As the fluid discharged from the tube lessens in quantity, the intervals of cleaning are lengthened. Each time the tube is cleaned the nurse's hands are carefully prepared with soap and water and bichloride solution.

At and after each cleaning the syringe used to withdraw the tube contents is cleansed inside and outside with hot water and bichloride solution, as are also the mouth of the tube and the rubber protecting it. Fresh bichloride cotton is placed over the entrance of the tube at each cleaning. The tube is removed as soon as the contents become clear and small in quantity. The edges of the opening left by the tube are drawn together by a strip of adhesive plaster, and the dressings replaced by fresh ones.

Everybody who takes part in an operation, and may during its performance handle any of the instruments or materials, is required to go through the same preparation. All assistance is rendered by three nurses; the chief nurse assisting the operator directly, a second nurse attending to the sponges, and a third nurse changing the waters. The preparation of operator and nurses is as follows: A hot soap bath, and clean linen clothing direct from the wash. The hands and arms are prepared by first carefully cleansing the nails with a penknife, a free use of hot water, soap, and nail-brush for twenty minutes, and rinsing in fresh water. They are then bathed in commercial alcohol, and are finally soaked in a bichloride solution (1 to 2,000) for five minutes. The greatest danger-point of infection is, of course, under the nails, and time used in a most careful hand toilet is never misspent—is, in fact, absolutely essential to success.

A careful study of the cut, which represents one of the operating-rooms as it appears prior to the introduction of the patient, will demonstrate the simplicity and thoroughness of all the preparations. There is not an article in the room which can not be duplicated or easily replaced in almost any well-ordered household. Soap, water, nail-brush, and bichloride-of-mercury tablets are easily obtained, and, as for the remainder, it rests entirely with the surgeon and his nurse. With a little more time and trouble the poorest hovel can be turned

into a well-ordered operating-room. The simplicity and thoroughness of all the preparations. There is not an article in the room which can not be duplicated or easily replaced in almost any well-ordered household. Soap, water, nail-brush, and bichloride-of-mercury tablets are easily obtained, and, as for the remainder, it rests entirely with the surgeon and his nurse. With a little more time and trouble the poorest hovel can be turned

into a good and safe operating-room by adopting these rules, as I have been able to demonstrate time after time in my work in the slums of this great city. Of course it means plenty of hard labor for both nurse and surgeon; but what nurse or surgeon who has once passed through the horrors of attendance at a death from septic peritonitis would not feel that the work before the operation was as nothing in comparison to that afterward?

The number of instruments, sponges, etc., may seem to many to be entirely inadequate for the purpose, but in many hundreds of operations we have found them amply sufficient; it is the rare exception that recourse to the instrument-case is necessary. The fewer articles used, the fewer sources of possible infection and accident. A large number of instruments lying about are, in addition, a source of endless confusion and annoyance, and they require an extra assistant.

**The Necessity of the Restriction of Immigration.**—In its issue for January 7th the *Philadelphia Medical News* says editorially:

"If the press is to be taken as the exponent of popular sentiment, it would seem to be settled that immigration will be interdicted for the next twelve months. This sentiment is, in a measure, founded upon the expression of medical opinion, which is based on the belief that the greatest danger of importation of Asiatic cholera is through the immigrant class and their baggage and personal effects. There are other reasons, practical and non-medical, why immigration should be restricted, and there are opposing arguments against restriction, but with these we have nothing to do in considering the subject from a medical and precautionary standpoint.

"Judging from the history of epidemics of cholera in Europe and the numerous scattered places on the Continent at which cholera still exists and has existed with a tendency even now to recrudescence, it is extremely probable that, under favorable conditions, later in the year the disease will become more widespread and epidemic, and finally reach the United States. There seems to be a parallel between the conditions and the course of the disease in the years 1865 and 1866, and those of 1892 and 1893. Extraordinary measures will be required to protect the United States from the introduction of the disease during the coming spring and summer.

"It is a fact substantiated by past experience that the greatest danger springs from the inflow of the immigrant class and the fomites of disease concealed in their baggage and personal effects; and it stands to reason that if immigration were temporarily suspended the problem of preventing a visitation of cholera would be greatly lessened, if not solved. It is a question whether the same end might not be accomplished without resort to so radical a measure. The English practice, which has yielded such favorable results, might be cited as a reason for hesitating before adopting so unusual and stringent a measure as exclusion; but the conditions in England and in the United States are quite dissimilar. In England, under the Local Government Board, sanitary law and sanitary administration are made applicable to every part of the realm, and local sanitation is brought to a high degree of efficiency. Therefore, on account of this comprehensive system of local sanitation and the state of preparedness to meet and cope with disease, quarantine is limited to inspection and the isolation of the sick, with little interference with commerce and without the necessity of restricting immigration.

"It is far different in this country. We are not yet prepared to throw down the barriers of quarantine, because our internal sanitary administration is only exceptionally adapted to meet the emergency, in the vast majority of places being neglected or only in its developmental stage. We are, however, making rapid strides in matters of sanitation, and may, at no distant day, catch up with England; but for the present, at least, it would be foolhardy to imitate England's practices without the facilities to carry out her sanitary methods.

"If our quarantine defenses were uniform, complete, and in the highest stage of efficiency there would be less justification for a temporary suspension of immigration; but such, unfortunately, is not the case. Quarantine is in the transition stage of administration. It is by no means certain what will be the issue of the discussion of the various proposed systems now before Congress; but this much is certain, that whether a national quarantine system shall be adopted or the local

quarantines be continued and supplemented by Government aid and supervision, a considerable period will elapse before organization and equipment will be completed. This very uncertainty impedes the activity of preparation. Consequently, if the suspension of immigration as a temporary expedient will help materially to prevent our land from the threatened danger—and of this there can be little doubt—by all means let the Government resort to this expedient.

"There is another consideration of great weight. This is the year of the Columbian Exposition, and it would be particularly disastrous if, by neglect to lessen the chances of the entrance of cholera, this disease should be introduced the coming spring or summer; but, laying aside this view of the question, if, with the great number of visitors attracted to our shores by the Exposition, immigration remains unrestricted, the immense passenger traffic would greatly enhance the risk of the importation of disease and seriously tax the ability of the quarantine authorities to meet the emergencies should cholera unfortunately break out.

"For the protection of the public health and for the best advantage of the whole country, there seems to be no alternative but to suspend immigration as a temporary expedient, made necessary by the existing conditions abroad."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

DISINFECTION AT QUARANTINE STATIONS,  
ESPECIALLY AGAINST CHOLERA.\*

By GEORGE M. STERNBERG, M.D.,  
DEPUTY SURGEON-GENERAL, U. S. ARMY.

DURING the recent prevalence of cholera on the Hamburg steamships, anchored in the "lower bay" of New York, the writer, in his capacity as "consulting bacteriologist" to the health officer of the port, gave considerable attention to questions relating to the practical measures of disinfection required under such circumstances as then existed.

The practical questions which confront the sanitary official charged with the exclusion of a pestilential exotic disease may be included in two categories: First, What articles require disinfection? Second, How can these articles be disinfected most expeditiously and economically?

An intelligent answer to these questions requires an exact knowledge as regards the biological characters of the infectious agent which is to be destroyed, and also with reference to the cost, practical availability, etc., of various disinfecting agents.

The principal biological characters of the cholera spirillum had been ascertained by bacteriologists before the recent outbreak of cholera in Europe. But, before giving a positive opinion with reference to certain questions which presented themselves upon the arrival of cholera-infected ships in the port of New York, the writer considered it necessary to make some additional experiments, the results of which will be given in the present paper.

These experiments were made at the Hoagland Laboratory, Brooklyn, by myself and Dr. E. H. Wilson, associate in bacteriology in this laboratory.

There is a general agreement among bacteriologists and sanitary officials as to the necessity for disinfecting the excreta of cholera patients and all articles which may by any possibility have been recently soiled by such excreta. But there is no general agreement as to the length of time during which soiled articles may remain dangerous, and opinions differ greatly with reference to the necessity for disinfecting merchandise brought in ships from infected ports.

The so-called "practical sanitarians" are, as a rule, far more exacting than the bacteriologists, and some of them demand the disinfection of everything that has come through an infected port, and of every portion of a ship upon which a case of cholera has occurred. In the interest of the public health it is no doubt best to err on the side of safety and to demand too much rather than too little. But, on the other hand, extravagant and unnecessary restrictions upon commerce bring our "sanitary science" into disrepute, and we must be prepared to support the measures recommended by exact experimental data.

At the last International Sanitary Conference, held in

Rome in 1885, upon the writer's motion a committee on disinfectants was appointed by the president of the "technical commission" of the conference (Dr. Moleschott, of Rome).

This committee consisted of Koch, of Germany; Sternberg, of the United States; Proust, of France; Thorne Thorne, of England; Eck, of Russia; Hoffmann, of Austria; and Semmola, of Italy.

One of the conclusions reached by this committee and unanimously adopted by the conference was the following:

"V. Disinfection of merchandise and of the mails is unnecessary (steam under pressure is the only reliable agent for the disinfection of rags—*les chiffons en gros*)."

No doubt the other members of the committee were largely influenced by Dr. Koch's opinion in adopting this conclusion, and no doubt Dr. Koch's opinion was founded upon his own recent experiments relating to the biological characters of the cholera spirillum, and especially upon the fact that it is quickly destroyed by desiccation. He had ascertained that when freely exposed to the air in a thin film upon a cover-glass, its vitality was destroyed in two or three hours. If, therefore, merchandise or the mails should be soiled by material containing this spirillum, while being handled upon the docks at an infected seaport, it would be quickly destroyed by desiccation, unless the infected articles were in a moist condition—in a moist condition the cholera spirillum may retain its vitality for several months.

In the experiments recently made by Dr. Wilson and myself I have endeavored to determine whether desiccation can be relied upon for the destruction of the spirillum when attached to absorbent materials, such as raw cotton or woolen goods. And at the same time I have tested the germicidal action of direct sunlight, which had previously been shown to be considerable in the case of certain other pathogenic bacteria.

The cultures used in these experiments came originally from a case of cholera in New York city (spirillum isolated by Dr. Dunham), and from a case taken to Swinburne Island from one of the Hamburg steamers (isolated by myself from a "rice-water" discharge collected by Dr. Byron). The cultures from the first-mentioned source I have marked "cholera D," those from the second "cholera S."

In a first experiment (September 26th) Dr. Wilson, at my request, placed small squares (about an inch square) of a sterilized woolen blanket in sterilized Petri dishes. Each piece of blanket was moistened with one or two minims of a bouillon culture, twenty-four hours old, of "cholera D." Some of the pieces were exposed to the direct sunlight upon a balcony having a southern exposure, and others in a dark closet in the laboratory.

After a given time of exposure the piece of blanket was transferred from the Petri dish to a test-tube containing sterile bouillon, and this was placed in the incubating oven at 37° C. The same method has been followed in the other experiments to be referred to later.

In this first experiment it was found that development occurred after two hours' exposure in the sunlight (temperature, 82° F.), but not after four hours; and that no de-

\* Read before the Section in Public Health of the New York Academy of Medicine, January 18, 1893.



velopment occurred from the pieces which had been kept in the dark closet for forty-eight hours. In experiments made subsequently by myself with "cholera S" the same result was obtained.

The experiment was varied by putting the square of blanket in a sterilized glass tube, three quarters of an inch in diameter, closed at each end with a plug of cotton. In every instance there was a failure to grow after four hours' exposure to direct sunlight, or forty-eight hours' exposure in the dark closet. Dr. Wilson varied the experiment by moistening pieces of sterilized white filtering paper with a drop or two of a bouillon culture, and found that no development occurred when these were subsequently transferred to bouillon after two hours' exposure to sunlight.

That the result does not depend directly upon the heat of the sun is shown by the fact that a thermometer exposed at the same time did not show a temperature above 82° F. in Dr. Wilson's experiments, made in September and October, or above 60° F. in my experiments made in December.

The failure to grow after forty-eight hours' exposure in a dark closet can only be ascribed to desiccation.

In another series of experiments I saturated pledgets of sterilized cotton, half an inch in diameter, with a bouillon culture of the cholera spirillum and placed them in glass tubes closed at each end with a plug of dry cotton. These tubes were exposed upon the balcony and also in the dark closet. The sun was obscured by clouds most of the time while this experiment was going on, and desiccation occurred slowly. The cotton pledgets exposed upon the balcony were still moist at the end of four days, and still gave a culture of the spirillum when transferred to bouillon. The cotton pledgets exposed in a dark closet (temperature, 70° to 75° F.) remained moist and gave a culture at the end of eight days, but at the end of ten days were completely dry, and no longer gave a culture of the spirillum. Similar cotton pledgets placed in Petri dishes between four thicknesses of sterilized blanket (four inches square), and placed in a dark closet, were dry at the end of forty-eight hours, and failed to give a culture when transferred to bouillon and placed in the incubating oven. In this case the cotton pledgets were more quickly dried because the moisture was absorbed by the layers of blanket between which they were placed.

*Sunlight.*—With reference to the experiments in which squares of blanket and of blotting paper were exposed to the direct rays of the sun, the question arises as to the germicidal action of the sunlight *per se*. This is a question which has already engaged the attention of bacteriologists, and I propose to give a brief account of some of the results obtained before referring to some additional experiments recently made by myself.

Downes and Blunt\* ascertained in 1877 that certain non-pathogenic bacteria, in liquid media, fail to develop when exposed to direct sunlight, and are restricted in their development when exposed to diffused light. Arloing†

(1885) reported, as the result of experiments made by him, that anthrax spores, in liquid media, after two hours' exposure to direct sunlight, failed to develop. Roux\* (1887) confirmed Arloing as to the action of sunlight on anthrax spores when they are suspended in bouillon and there is free access of atmospheric oxygen. In the experiments of Mormont† (1892) dry anthrax spores were found to resist the action of sunlight for a long time, but moist spores, freely exposed to the air, failed to grow after forty-four hours' exposure to sunlight. In the absence of spores the anthrax bacillus in a moist condition, when freely exposed to the air, failed to grow after exposure to the direct rays of the sun for two hours; but in the absence of atmospheric oxygen, the same bacilli were not destroyed at the end of fifty hours' exposure.

Gaillard‡ (1888) found that four hours' exposure to direct sunlight was fatal to the typhoid bacillus when freely exposed to the air in culture media. Pansini\* (1889) experimented upon a variety of pathogenic and non-pathogenic bacteria, and arrived at the conclusion that diffused daylight exercises a decided restraining influence, and that direct sunlight destroys the vitality of these micro-organisms. In a liquid medium, all of the bacteria tested were destroyed in two hours and a half. Geisler|| (1892) has tested both sunlight and the electric light, and reports, as the result of his experiments, that all of the rays exercise a restraining influence upon the development of the typhoid bacillus, with the exception of the red rays, and that the effect is greatest at the violet end of the spectrum. He concludes that the germicidal action is not due alone to the direct effect of sunlight upon the bacilli exposed to it, but also, and probably chiefly, to changes induced in the culture medium—a conclusion previously reached by Roux and others.

The fact that the germicidal action of sunlight depends largely upon the presence of atmospheric air and moisture makes it appear probable that it is due to the production of ozone rather than to the direct action of sunlight upon the micro-organisms exposed to it. This conclusion is in accord with the results of my own experiments upon the cholera spirillum suspended in a liquid medium.

In my experiments, test-tubes containing sterile bouillon, inoculated with two or three *ose* of a recent bouillon culture of the cholera spirillum ("cholera S"), were exposed to direct sunlight (in December) upon a balcony of the Hoagland Laboratory having a southern exposure. After such exposure the tubes were placed in an incubating oven at 37° C. No development occurred in the tubes exposed for two hours or more. But when a larger number of spirilla were added to the bouillon, by carrying over with the

\* Roux. *Ann. de l'Institut Pasteur*, vol. i, p. 445.

† Mormont. Action de la désiccation de l'air et de la lumière sur la bactérie charbonneuse filamenteuse. *Ann. de l'Institut Pasteur*, vol. vi, 1892, p. 21.

‡ Gaillard. *De l'influence de la lumière sur les micro-organismes*. Lyon, 1888.

\* Pansini. *Rivista d'igiene*, 1889. Review in *Ann. de l'Institut Pasteur*, vol. iii, p. 686.

|| Geisler. Zur Frage über die Wirkung des Lichtes auf Bakterien. *Abh. für Bakteriologie*, Bd. xi, 1892, p. 191.

\* Downes and Blunt. *Proc. of the Roy. Soc.*, London, vol. xxvi, 1877, p. 188; also vol. xxviii, 1878, p. 129.

† Arloing. *Compt. rend. de l'Acad. des sci.*, t. c et ci. Also *Archives de physiologie*, 1886, p. 252.

platinum keep a portion of the pellicle from the surface of the culture, a longer exposure was required—development occurred in such tubes after four hours' exposure, but not after five hours.

The question arises whether exposure to sunlight effects some change in the bouillon which renders it unfit for the development of the cholera spirillum. This is answered in the negative by the following experiment: The tubes containing bouillon inoculated with the spirillum and exposed to direct sunlight, having been left in the incubating oven for forty-eight hours and remaining perfectly transparent, were reinoculated from a recent bouillon culture and returned to the incubating oven. In every instance a characteristic development occurred within twenty-four hours.

In a single experiment in which flesh-peptone-gelatin was inoculated by puncture and exposed to the sunlight for six hours, development occurred after such exposure—experiment made in December, when the temperature was too low to melt the gelatin culture medium during exposure.

We conclude, from the experimental data given, that desiccation is a reliable method of destroying the cholera spirillum, and that the International Sanitary Conference of Rome was justified in the conclusion that "disinfection of merchandise and of the mails is unnecessary," if the merchandise was clean and dry when received on shipboard for transportation, and if it arrives at our ports in the same condition.

Also that free exposure to fresh air and sunshine is one of the most reliable methods of disinfecting articles which have attached to them the cholera spirillum.

The washing of the exterior of packages of merchandise with a solution of mercuric chloride, and the fumigation of the mails with sulphur dioxide, which has been insisted upon by some sanitarians in this country, appears to us to be an unnecessary procedure, unless the merchandise has been exposed to infection by the dejecta of cholera patients during the voyage, or after its arrival at our ports. But certain kinds of merchandise are more or less moist when loaded for transportation, and the question arises as to the possible danger of receiving such merchandise when shipped from an infected port or brought upon a vessel upon which cases of cholera have developed during the voyage. In this class of merchandise beet sugar occupies the most prominent place, because a very large amount of it is shipped from Hamburg and other German ports.

As "consulting bacteriologist" to the health officer of the port of New York the writer was called upon to give an opinion as to the possible danger from this source during the recent prevalence of cholera in Hamburg. In the absence of any exact experimental data the opinion given was necessarily guarded, and it was thought advisable to insist upon the disinfection in quarantine of the sacks in which sugar is transported, as there was a possibility of their being infected upon the Hamburg docks; and, being moist, the cholera spirillum might retain its vitality or even multiply during transit. In order to satisfy myself as to the possible danger from this kind of merchandise, I made a number of experiments with the following results:

Extract from a letter addressed to Dr. William T. Jenkins, health officer, dated October 24, 1892:

"My experiments show that the spirillum of Asiatic cholera does not grow in an aqueous solution of beet sugar in the absence of any nitrogenous pabulum; but that in such pabulum, as found in the 'flesh-peptone solution,' commonly used in bacteriological laboratories, it grows even when a considerable amount of beet sugar is held in solution. In my experiments it has not grown in bouillon containing fifty per cent. of beet sugar, but there has been a more or less abundant development when the amount was less than twenty-five per cent.

"I infer from these experiments that beet sugar alone will not serve as a pabulum for the growth of this spirillum, and that a fifty-per-cent. solution would prevent its development.

"I have made the following practical experiment to determine how long the spirillum would be likely to survive if by accident the exterior of sacks containing beet sugar should be contaminated by cholera dejecta:

"Pledgets of cotton were soaked in a recent bouillon culture of the spirillum and were then placed between sacks containing beet sugar in a closed receptacle—a tin wash-boiler. After a period varying from two to eight days these pledgets were removed and placed in test-tubes containing sterile bouillon. In my experiments I have not succeeded in recovering the cholera spirillum in such cultures after the pledgets of cotton had been left between the sugar sacks for four days or more. But other saprophytic bacteria have always developed in these cultures.

"It may be that failure to develop in these cultures was due to the presence of the saprophytic bacteria, which multiplied rapidly and caused a fermentation of the sugar carried over with the pledgets of cotton to the culture medium; or it may be that it was due simply to desiccation."

Since writing the foregoing I have made additional experiments, which show that exposure to a fifty-per-cent. solution of beet sugar for forty-eight hours destroys the vitality of the cholera spirillum; also that pledgets of cotton, thoroughly wet with a bouillon culture and placed in contact with beet sugar, in a glass jar in which the moist sugar was above and below the cotton pledgets for a depth of three or four inches, when subsequently transferred to sterile bouillon do not give a culture of the cholera spirillum after forty-eight hours' contact with the sugar.

In view of the results of these experiments, I see no good reason for making an exception of this kind of merchandise.

Another question which confronts the quarantine official relates to the danger from green hides, salted fish, and various food products imported into this country from Europe. I have no evidence with reference to hides. If they are perfectly dry, I see no reason for making an exception with reference to them; but I should be disposed to regard wet hides or skins of any kind as possibly dangerous, and I would be governed by the same rule in deciding with reference to the admission of packages of wool, furs, etc. Such articles may be infected with anthrax spores, and the

infection of small-pox could no doubt cling to them a long time; but, in view of the fact that a piece of blanket moistened with a pure culture of the cholera spirillum and placed in a dark closet is no longer infected at the end of forty-eight hours, it is evident that we have nothing to fear from dry packages of wool from Russia which have been in transit for several weeks, even if the sheep were sheared by persons suffering from cholera (?).

The Imperial Board of Health of Germany has recently published the results of an extended series of experiments made to determine the length of time the cholera spirillum will survive upon the pulp of various kinds of fruit and upon the surface of fresh or salted fish, etc.\*

I give below a brief summary of the results reported:

Upon fresh flounder, carp, and shell-fish the spirillum had died out in two days; upon smoked or salted herring, in twenty-four hours. Upon confectionery of sugar, chocolate, or almonds no development occurred after twenty-four hours. At the room temperature, upon sweet cherries the spirillum survived from three to seven days; upon sour cherries, three hours; strawberries, one day; pears, two to five days; cucumbers, five to seven days. At a temperature of 37° C., the time during which the spirillum retained its vitality was, as a rule, somewhat less. Upon the surface of dried fruits—cherries, apricots, peaches, plums—the spirillum could not be recovered after one or two days. When the dried fruit was moistened the time was longer—one day on apricots, two days on peaches, five days on cherries, six days on cucumbers.

The writer has recently made a few experiments of the same kind with sweet Florida oranges and bananas. Inoculations were made upon the freshly-cut surface of the fruit from a recent bouillon culture. The fruit, in a glass-covered dish, was placed in the incubating oven at 37° C. No development occurred in bouillon inoculated from the surface of the fruit at the end of twenty-four hours.

In the report from which we have already quoted, the survival of the cholera spirillum in various drinks is also given, as follows: Pilsener beer, three hours; Munich beer, three hours; white wine, five minutes; red wine, fifteen minutes; cider, twenty minutes; cold coffee (six-per-cent. infusion), two hours; milk, not sterilized, twenty-four hours; milk, sterilized, still living at the end of nine days; tea, two-per-cent. infusion, four days; three-per-cent. infusion, one day; four-per-cent. infusion, one hour; cacao, one-per-cent. or two-per-cent., still living at the end of seven days.

Uffelmann,† in a recently published article, gives some additional data of interest in this connection. In his experiments the cholera spirillum was found to survive upon the surface of slices of rye bread, freely exposed to the air, for twenty-four hours; when the bread was wrapped in paper, for three days; and when it was placed under a bell-jar, for seven days. Upon slightly acid butter the spirillum survived for from four to six days. On roasted

meat which was protected from drying by a bell-jar, development still occurred at the end of a week, and upon smoked fish on the fourth day.

According to Uffelmann, the spirillum may survive upon the printed pages of a book for seventeen hours, and upon writing-paper inclosed in an envelope for twenty-three hours and a half; upon silver and copper coins it only survives for half an hour; upon the dry hand for an hour, but not for two hours.

In Uffelmann's experiments the time of survival upon textile fabrics which were apparently dry is stated to have been four days; upon moist goods the spirillum was found to be still living at the end of twelve days.

Before concluding this paper I desire to make some remarks upon practical disinfection by heat. The low thermal death-point of the cholera spirillum justifies us in giving heat the first place as an agent for the destruction of this pathogenic micro-organism. And most authorities have recommended the use of steam for the disinfection of clothing, blankets, etc.

At the request of the health officer of the port of New York, I made (in September) some experiments to determine the reliability of the method of disinfecting the clothing, etc., of immigrants sent to Hoffman's Island from the cholera-infected ships in the lower bay. This is effected in a steam disinfecting chamber, constructed under the direction of the predecessor of the present health officer. I quote from my report to Dr. Jenkins, dated September 25, 1892, as follows:

"Sir: In compliance with your written request, dated September 17, 1892, I have made 'a practical test of the method of disinfection now employed at Hoffman's Island,' with the following results:

"On the 21st inst., at 10 A. M., I found that the wire baskets in the disinfecting chamber had been filled in the usual manner with articles to be disinfected from the baggage of immigrants from the steamship Scandia. I placed in five of these baskets, in different parts of the disinfecting chamber, the following test organisms: Cholera spirillum, typhoid bacillus, *Sarcina lutea*. The thermal death-point of these micro-organisms, as determined by my own experiments (1887), is for the cholera spirillum, 52° C.; for the bacillus of typhoid fever, 56° C.; for *Sarcina lutea*, 64° C. These determinations all relate to moist heat; in dry air the thermal death-point is very much higher. Small pledgets of the cotton were soaked in a bouillon culture of each of the test organisms, and each of these pledgets was placed between two pieces of sterilized woolen blanket two inches and a half square.

"In making the test the cholera spirillum was placed in the middle and one of the other test organisms above and below it, so that three layers of sterilized blanket covered the spirillum, while but one layer covered externally the pledgets of cotton containing the other test organisms. These packets, each containing the three test organisms on pledgets of cotton between pieces of blanket, were placed in five baskets beneath the clothing to be disinfected, and, so far as possible, in the middle of the loosely piled articles. The doors of the disinfecting chamber were closed, and Mr.

\* Abstract in *Centralbl. für Bakteriologie*, Bd. xii, 1892, p. 755.

† *Berl. klin. Wochenschr.*, 1892, No. 48, p. 1209.



Crawford was instructed to follow his usual method with reference to the admission of steam, etc.

"... The test organisms were taken to the Hoagland Laboratory, and each pledget of cotton was washed off in ten cubic centimetres of sterile bouillon in a test-tube. From each of these test tubes a small quantity was transferred by means of a platinum loop (three *öse*) to liquefied gelatin in other test-tubes, and Esmarch roll-tubes were made. The tubes containing bouillon were placed in an incubating oven at 35° C., and the Esmarch roll-tubes were kept at the room temperature. At the end of four days no development had occurred in any of the tubes inoculated with the cholera spirillum or the typhoid bacillus; but two of the bouillon cultures contained *Sarcina lutea*, and the corresponding roll-tubes contained colonies of this micro-organism, showing that there was a failure to destroy the sarcina in two out of five of the exposures made. . . ."

Now, there is a fact connected with my experiment which I failed to mention in this report to Dr. Jenkins. My "controls" of the cholera spirillum upon pledgets of cotton between squares of blanket, which were kept at the laboratory, when placed in bouillon in the incubating oven, at the same time with those exposed in the disinfecting chamber at Hoffman's Island, also failed to grow. The spirillum had been destroyed by desiccation during the forty-eight hours that the pledgets of cotton were kept between squares of sterilized blanket. In view of this fact and of the experimental evidence heretofore recorded, the question arises as to whether the exactions made by bacteriologists and sanitarians with reference to the use of steam as a disinfecting agent are not extravagant, and whether there is not some better way of disinfecting clothing, etc., in cholera.

After disinfection by steam in an apparatus such as is used at Hoffman's Island, the articles exposed in the chamber are quite wet, and some method of drying them before repacking in trunks, etc., is necessary for two reasons: 1. If by any chance cholera germs should escape destruction, they would be preserved for a longer time in the moist clothing than in the same articles if dry before they were placed in the disinfecting chamber. 2. The clothing would soon be injured if packed away wet.

As already stated, the thermal death-point of the cholera spirillum in a moist condition (bouillon culture), as determined by the writer, is 52° C. (125°6' F.), the time of exposure being ten minutes. It is with certainty destroyed in a very brief time by a temperature of 60° C. (140° F.). The demand, therefore, that it shall be subjected for half an hour or more to a temperature of 100° C., or to steam under pressure at a higher temperature, would certainly be extravagant if the only question related to the destruction of the spirillum by the disinfecting agent. It is something like asking for a sledge hammer for the purpose of killing a mosquito. Such an instrument would be certain death to the insect, but it seems a waste of energy to use it. We do not need such a tremendous blow, but we must be very sure that the blow is struck in the right place, otherwise the insect will escape uninjured, while serious damage may be done in the ineffectual effort to kill it.

In practical disinfection the question of the penetration of the objects to be disinfected by the disinfecting agent is quite as important as that relating to the germicidal power of this agent. And it has been shown by carefully conducted experiments that neither steam nor hot air readily penetrate bundles or piled-up heaps of clothing, blankets, etc. The free exposure of such articles in the disinfection chamber is therefore a matter of prime importance. As it is extremely desirable that the articles to be disinfected should come from the disinfecting chamber in a dry condition, and as the cholera spirillum is quickly destroyed by desiccation, the question at once arises, Why not use dry heat instead of steam in cholera disinfection? The use of dry heat as a disinfecting agent has generally been given up since Koch and Wolffhügel (1881) showed that the destruction of various micro-organisms tested by them requires a temperature of 120° to 128° C., and that the destruction of dry spores requires a temperature of 140° C., maintained for three hours.

But at the time these experiments were made the cholera spirillum had not been discovered, and the bacteria tested by Koch and Wolffhügel were not, like it, quickly destroyed by desiccation.

Desiring to ascertain the effect of dry heat upon the cholera spirillum, I requested Dr. Wilson to make some experiments in an ordinary incubating oven maintained at a temperature of 60° C. As a preliminary experiment, small pieces of sterilized blanket were moistened with a drop of a twenty-four-hours-old bouillon culture of the cholera spirillum. These were kept in sterilized Petri dishes for twenty-four hours so that they might be partly dry. They could not be kept much longer without killing the spirillum by desiccation. At the end of the time mentioned they were placed in the incubating oven (at 60° C.) and left for periods varying from three quarters of an hour to four hours. Upon transferring the little squares of blanket to sterile bouillon, it turned out that no development occurred from any one of them, while the controls gave a pure culture of the cholera spirillum.

Upon considering this result in connection with our other experiments, heretofore reported, it was apparent that it was not worth while to carry the experiment any further. For, if the spirillum was still moist when placed in the incubating oven, a short exposure would certainly kill it, inasmuch as its thermal death-point, when in a moist condition, is several degrees below 60° C.; and if it were completely dry when placed in the incubating oven, its vitality would already have been destroyed by desiccation.

It is evident that, having an exact knowledge of the biological characters of this spirillum, we need no longer be controlled in making recommendations relating to its destruction by data relating to anthrax spores or pathogenic bacteria which resist desiccation—*e. g.*, the pus cocci, the typhoid bacillus, the diphtheria bacillus.

To the writer it appears that disinfection would be accomplished quite as effectually by the free exposure of woollen garments, blankets, etc., in a hot-air drying oven or chamber to a temperature of 80° to 100° C. for half an hour or more, being careful that no two articles were piled

one upon another, for the penetrating power of dry heat is very slight. If the hot-air oven were provided with an exhaust pump, the drying process could be effected more promptly. Or it might be so arranged that a current of hot dry air should pass over and through the articles to be disinfected.

In the absence of such a disinfecting chamber, and in favorable weather, such articles could be exposed to the sun and air upon clothes lines or spread out upon an asphalt pavement like that at Hoffman's Island, for example.

Soiled underclothing and all articles that are commonly sent to a laundry can be most expeditiously disinfected by immersion in boiling water. To pile up such things in baskets in a steam disinfecting chamber appears to the writer to be bad practice and possibly dangerous. Mattresses, feather pillows, etc., should either be destroyed or thoroughly dried in a hot-air oven—preferably in one provided with an exhaust pump, or by long exposure to a current of hot air.

For the disinfection of paper rags (in cholera), thorough desiccation appears to the writer to be a safer method than exposure to steam; but neither method can be safely applied to baled rags. If rags are thoroughly dried when baled and not exposed to infection subsequently, I see no good reason for making an exception with reference to them. But rags collected in an infected area are justly regarded with suspicion by sanitarians, and should be excluded from our ports.

In disinfection on shipboard the germicidal action of sunlight and dry air should be kept in view. Solutions of chemical disinfectants are chiefly required for excreta, for soiled clothing, and for washing surfaces exposed to contamination by the excreta of the sick. It is prudent also to apply them to the walls and ceiling of apartments which have been occupied by cholera patients. But it hardly appears necessary to deluge a whole ship with a solution of corrosive sublimate because one or more cases of cholera have occurred in the steerage, in view of the fact that the cholera spirillum only survives a few hours when freely exposed to light and dry air.

If there is a compartment on shipboard which can be used as a steam disinfecting chamber, woolen clothing, blankets, etc., had better be disinfected by steam or burned if of little value. But it hardly seems necessary to blister the paint in the cabins and injure the dry and clean curtains, stuffed furniture, etc., when no cases have occurred in this part of the ship.

The rubbing down of walls with moist bread may be a useful and necessary measure for the disinfection of apartments occupied by patients with diphtheria or erysipelas, for the specific infectious agent in these diseases resists desiccation. In the case of cholera it appears to be superfluous, if by artificial heat or exposure to fresh air such walls and surfaces can be thoroughly dried.

The writer earnestly hopes that what has here been written will not be used as a pretext for the neglect of those necessary measures of disinfection upon which we must depend for the exclusion of the pestilence which was knocking at our doors in the autumn and will probably

make a renewed attempt to effect an entrance in the spring. We fully believe that such an entrance may be prevented by the intelligent application of methods based upon the experimental data obtained by exact scientific research.

In the absence of such knowledge the efforts of sanitarians to exclude an exotic pestilential malady have not infrequently been attended with unnecessary exactions upon commerce, and an unjustifiable interference with the rights of individuals who have been so unfortunate as to embark upon a suspected or infected ship.

## A CLINICO-PATHOLOGICAL STUDY OF INJURIES OF THE HEAD,

WITH SPECIAL REFERENCE TO  
LESIONS OF THE BRAIN SUBSTANCE.

By CHARLES PHELPS, M.D.,

SURGEON TO BELLEVUE AND ST. VINCENT'S HOSPITALS.

(Continued from page 39.)

### FRACTURES OF THE VERTEX.

CASE LXXI.—Male, aged fifty-two; fell backward and struck back of his head, at the same time fracturing his left patella. At the hospital to which he was taken his head injury did not attract attention. He was delirious on the second day and had a convulsion on the fifteenth, and his condition was attributed to the alcoholic habit. Six months later the patella was wired for non-union. His muscular rigidity under the anæsthetic was notable. His temperature the day following the operation was 99° till one o'clock p.m. Half an hour later and without premonition he had an epileptiform convulsion which began in the face and became general, and was followed by wild delirium. He had two other similar convulsions, also followed by wild delirium, and the last by a temperature of 103°. The kidneys acted freely and the urine was normal. The wound of operation was the seat of primary union. The temperature was normal on the next day and so remained for fifteen days. At that time an attempt was made to coapt the fragments of the patella, which he had torn assunder in his convulsions and delirium. This failed and there was some subsequent suppuration which elevated the temperature for the next ten or twelve days to 99°+ to 102°. The wound was then healed and the temperature again became normal. At each dressing great muscular rigidity and tonic spasm had been noted in the affected limb (left). Just one month from the previous attack convulsions recurred and were frequently repeated for thirty-six hours. They were all marked by the same characteristics. Each one was preceded by great restlessness. In about fifteen seconds this was followed by wide dilatation of both pupils. The muscles of the left side of the face began to twitch and the eyes deviated to the left. The muscular spasm extended to the other side of the face, then to the left arm and leg, and finally became general. The whole convulsion lasted about thirty seconds. During the day the deviation of the left eye became permanent. The tendon reflexes were markedly increased. After the convulsions ceased he became delirious and died nine hours later. At the time of the seizure his temperature was 100°1', in twelve hours it became 102°, in twenty hours 104°, in twenty-four hours 104°8', and afterward fell to 104°.

Necropsy.—The knee joint of operation was found to be free from inflammatory complication, and the wound practically healed. A depression was discovered in the skull just above the external occipital protuberance in the median line. This

was confined to the external table and no lesion of the brain existed beneath it. At the opposite extremity, however, of the antero-posterior diameter there was a circular laceration upon the anterior border of the right frontal lobe, and another laceration existed upon the under surface of the left frontal lobe, upon the middle of the second and third orbital convolutions, an inch and a half by an inch in diameter. A still larger laceration of the base, at least three inches and a half by an inch and a half in diameter, existed upon the right temporo-sphenoidal lobe, involving a little of the first, and almost the whole of the second and third convolutions. All these lacerations were distinctly limited, softened, and of a brownish color, showing the considerable time which had elapsed since they were inflicted. The whole right temporo-sphenoidal lobe was greatly atrophied, indurated, and pigmented. The pia was thickened over each laceration.

CASE LXXII.—Male, aged forty; cause of injury unknown; found unconscious in bed; contusion of forehead and left upper eyelid; pupils regular and fixed; right facial paralysis; both arms and right leg rigid; pulse, 96; respiration, 36. Twenty-four hours later, right arm paralyzed, but still rigid; could not determine whether right leg was paralyzed; pulseless; died in thirty hours; temperature at admission, 102.6°; twenty-four hours later, 105°.

*Necropsy.*—Hæmatoma over whole left parietal region. Linear fracture across whole length of parietal bone just above temporal ridge, recurving upon itself posteriorly for a little distance. Large epidural clot beneath the fracture compressing and flattening the whole left hemisphere and forming an oblique plane. General contusion of the whole brain, which was hyperæmic and studded with minute extravasations.

CASE LXXIII.—Male, aged twenty-eight; received a blow upon the head from a falling elevator (lift); compound comminuted fracture of right frontal bone; wound filled with clot and brain tissue; opening in the skull an inch and a half by half an inch in diameter. After cleansing the wound a cavity was left in the frontal lobe as large as a Mandarin orange. The patient was semi-conscious, but mental condition soon became normal. Pulse, 68; temperature, 100.2°. Vomited frequently. At the end of twenty-four hours he was rather heavy and somnolent, but could be easily roused, and was rational. Two hours later he was found in a comatose condition, with a temperature of 105.4°, and died soon afterward, twenty-seven hours from the time he received the injury.

*Necropsy.*—Two large fissures ran backward on either side of the skull, one terminating in the parietal and the other in the occipital bone. There was no epidural hæmorrhage. An irregularly shaped piece of the internal table was detached and rested upon the brain just above the cavity noted, but nearer the median line, and a subdural clot three inches in diameter and half an inch thick was situated just posterior to it upon the right frontal lobe. There was slight cortical hæmorrhage in the left occipital region. There was no lesion at the base. The cavity made by laceration of the frontal lobe extended nearly to the lateral ventricle. The whole brain, including the pons, optic thalami, and corpora striata upon both sides, and the cerebellum, was streaked with minute coagula, some of which, an inch in length, could be teased from the vessels.

CASE LXXIV.—Male, aged thirty-two; fell thirty feet into the hold of a vessel, striking upon his back. Unconscious; pulse and respiration slow; stertor; no other symptoms. Condition resembled that of alcoholic coma. Next morning the temperature was 101.6°; evening, 101.8°. On the second day, A. M., 103.8°; M., 104.2°; P. M., 105.4°. Right hemiplegia and both eyes turned to the left. Pupils normal. Pulse feeble and rapid. Respiration inadequate from pulmonary œdema. Still uncon-

sconscious. On the third day temperature, A. M., 106.4°. Death in sixty hours.

*Necropsy.*—Separation of coronary suture from right frontal eminence to its left external extremity. Not much epidural hæmorrhage. Laceration of posterior extremity of left temporo-sphenoidal extending into occipital lobe. Consequent subdural hæmorrhage of moderate amount, involving left motor area and occipital lobe to the base. Another laceration existed on the posterior border of the left cerebellum. General contusion.

CASE LXXV.—Male, aged thirty-two; fell from his truck. Contusion of left parietal region; unconscious; irritable when disturbed; temperature, 99°; pulse, 60 and full; coma continued for about a week with temperature from 99° to 100°, then a period of irritability and mild delirium which lasted two weeks longer. Mental condition after the first two weeks apathetic and weak. He answered questions rationally when spoken to, but rambled in his speech. He recognized his friends, but spoke only when spoken to and had some delusions. At the end of a month he was transferred to Mount Sinai Hospital and died there.

*Necropsy.*—Fracture found in left occipito-parietal region. Laceration.

CASE LXXVI.—Female, aged twenty-three; suicidal gunshot wound through right temporal fossa; median line of vertex presented a conical elevation; hæmorrhage considerable; patient unconscious with stertor; coma became more profound; temperature fell to 95°; pulse rapid; death in four hours.

*Necropsy.*—Scalp infiltrated with blood. Bullet entered frontal bone a little above and external to right eye, penetrated the brain, passed inward, upward, and backward, and impinged upon the inner surface of the skull, a little to the left of the median line in the middle parietal region. It elevated two little triangular pieces of bone which remained attached to the pericranium. The bullet then fell back into the brain. It had entered at the anterior extremity of the fissure of Sylvius, traversed the right frontal lobe, just below the cortex and parallel to its curve, and then passed a little backward and across the longitudinal fissure below the longitudinal sinus, into the left parietal lobe; after fracturing the left parietal bone and falling back into its cerebral track as noted, it rested about half an inch below the surface. The skull was very thick and fissured from the point where the bullet entered. There was little intracranial hæmorrhage.

CASE LXXVII.—Male, aged twenty-six; homicidal gunshot wound in right temporal fossa; patient unconscious; pupils normal; general muscular twitching; coma became profound, and death followed in twelve hours.

*Necropsy.*—Bullet entered just behind external angular process of right frontal bone, traversed the right hemisphere nearly in its antero-posterior diameter, just above corpus callosum, impinged upon inner surface of the occipital bone, and rebounding through the opening in the dura, fell into the inferior occipital fossa. Considerable subdural hæmorrhage.

CASE LXXVIII.—Male, aged forty-two; suicidal gunshot wound in right temporal fossa; patient unconscious; pulse, 70; no other symptoms. He soon regained consciousness and was rational, but his mental processes were sluggish. He had syphilitic laryngitis and aphonia. Temperature, 99°. An attempt was made to remove the ball next day, the opening in the bone at about the right temporo-frontal junction having been enlarged by the trephine. The track of the ball could be traced about two inches and a half forward, downward, and inward, at which distance a piece of bone, carried inward by the ball, circular and comprising both tables, was discovered and removed. Considerable brain matter oozed out during this exploration. The ball was not found. No reaction followed the



operation. The patient lived thirty days. His urine and faeces were voided freely, but without attracting his attention. The discharge of brain matter from the wound gradually diminished. At the time of his death the external wound had almost entirely healed. The most notable symptom in his condition was hebeteude. He remained rational but quiet, listless, and taking no notice of people or things, and without interest in what went on about him, with occasional intervals in which his mind seemed brighter. The temperature ranged from  $100^{\circ} +$  to  $103^{\circ} 6'$ , and was usually above  $101^{\circ}$ .

*Necropsy.*—The ball entered the brain about the middle of the third right frontal convolution, and passed nearly transversely through the center of both frontal lobes, and lodged just behind the ascending arm of the fissure of Sylvius on the left side in the upper portion of the island of Reil. Its track passed just above the anterior horn of both lateral ventricles, and above the corpus callosum, just involving the callosal marginal convolutions. On the left side the track was sharply defined, and formed a cavity five eighths by seven eighths of an inch in diameter containing the ball surrounded by clot and brain detritus. This was separated by the median fissure from the cavity on the right side from which the bone was extracted during life. Between the two cavities was a minute piece of bone.

CASE LXXXIX.—Female, aged eight, fell three stories; conscious; shock; compound comminuted depressed fracture of left frontal bone, with laceration of brain and meninges; restless and delirious; died on the third day; temperature on admission,  $100^{\circ} 2'$ ; rose to  $104^{\circ} 6'$ .

*Necropsy.*—Cavity in left prefrontal lobe filled with clot and brain detritus. No considerable intracranial hemorrhage. General contusion of brain substance with coagula in minute vessels.

CASE LXXX.—Male, aged fifty; cause of injury unknown; unconscious; pulse and respiration rapid; temperature,  $100^{\circ}$ ; both pupils dilated; died in four hours.

*Necropsy.*—Simple fracture of left temporal bone, squamous portion. Deep laceration of right temporo-sphenoidal lobe, also of anterior border of left temporo-sphenoidal, smaller and shallower. Whole superior surfaces of both hemispheres covered by cortical hemorrhage.

CASE LXXXI.—Male, aged sixteen; struck on the head by an iron wrench; scalp wound; depressed fracture at right parieto-occipital junction; trephined and elevated; no general symptoms; waking case; no injury of dura; no subsequent symptoms.

CASE LXXXII.—Male, aged thirty; struck on the head; compound depressed fracture of left temporal bone at parietal junction; temporarily unconscious; afterward dazed; aphasia; trephined and bone elevated next day; aphasia continued eight days; sensory aphasia on the third day; temperature on admission,  $99^{\circ}$ ; next day,  $103^{\circ}$ ; second day,  $103^{\circ} 8'$ ; became normal on eighth day; afterward varied from  $99^{\circ}$  to  $102^{\circ}$  for twenty days; did not again become normal till thirtieth day.

CASE LXXXIII.—Male, aged thirty-three; blow from a cleaver; fragment of outer table of left frontal cut off and left hanging by the periosteum, including the frontal eminence; condition irritable; wound healed in four days; no subsequent symptoms.

CASE LXXXIV.—Female, aged two years and a half; fell down stairs; compound depressed fracture of left parietal bone just posterior and external to frontal eminence; wound lacerated and contused. Three days later, convulsion occurred and admitted to hospital. Wound suppurating and sloughy. No general symptoms. Bone elevated. Highest temperature,  $102^{\circ}$ . Discharged in twenty-eight days; readmitted fourteen days

later; subdural abscess; hernia cerebri; abscess in brain evacuated; hernia subsided and patient discharged.

CASE LXXXV.—Female, aged forty-two; struck with a hammer weighing eight pounds; several lacerated and contused wounds of the scalp, and a depressed fracture of the posterior inferior part of the right parietal bone one half by three fourths of an inch in diameter, with a fissure running forward; hematoma over right malar bone and a contusion of the back of the neck; patient conscious, rational, and restless; pulse, 120 and full; temperature,  $99^{\circ}$ ; third day,  $100^{\circ}$ ; fourth day,  $104^{\circ}$ ; trephined and elevated; some epidural clot removed; dura tense and not pulsating, and was incised; small amount of blood and serum escaped; wound healed at once and temperature fell gradually to  $99^{\circ}$  in four days ensuing. Six months later, I was told by Dr. G. Douglass that he had seen her at about that time. She was very nervous, excitable, and complained that she was confused and "wrong in her head" ever since her discharge.

CASE LXXXVI.—Male, aged thirty-eight; was struck by a bottle in middle of forehead; he was dazed, but able to walk; compound depressed fracture of right frontal bone extending into orbital plate, and frontal sinus opened; trephined and a piece of bone, an inch and a half square, with a sharp edge, which had penetrated the cerebral substance, was removed. The superior longitudinal sinus was torn, and hemorrhage was controlled by pressure against the bone with one blade of a Langenbeck's forceps. Sutured in position till the third day. The patient for a time was irritable and delirious, requiring mechanical restraint. The temperature was very uniform, varying only from  $99^{\circ}$  to  $100^{\circ}$ , when it became normal.

CASE LXXXVII.—Male, aged forty; knocked down by a blow upon the head. When he recovered consciousness he walked into the hospital. Compound depressed fracture posterior to left frontal eminence, and piece of inner table driven in. Dura uninjured. No general symptoms. Temperature,  $101^{\circ}$  to  $102^{\circ}$  for six days, when it suddenly dropped from  $101^{\circ}$  to normal.

CASE LXXXVIII.—Male, aged fourteen; fell two stories; temporarily delirious from fright and excitement, and then recovered and walked home; depressed fracture in right frontal bone near coronal suture; elevated; no subsequent symptoms.

CASE LXXXIX.—Male, aged thirty; gunshot fracture of right frontal one inch above the zygoma; considerable hemorrhage from wound and beneath the conjunctiva; right eye protruded so much that the lids could not be closed; no mental symptoms; temperature,  $99^{\circ} 5'$  to  $104^{\circ} 5'$ ; next day temperature  $104^{\circ}$ . The bullet-opening in the skull was enlarged by the trephine, several loose pieces of bone removed, and the bullet felt near the optic foramen. The eye was then removed and the bullet extracted through the orbit, the dura having been first incised. The roof of the orbit was found to be much comminuted. Temperature remained high, and delirium and illusions continued for three days. The wound suppurated rather freely for the first month, and the patient often suffered from headache, which was always relieved by changing the dressings. He remained in the hospital for two months and was then discharged entirely well. The temperature for the first ten days was  $102^{\circ}$  to  $103^{\circ}$ ; for the next twenty days,  $100^{\circ}$  to  $101^{\circ}$ ; for the next ten days,  $100^{\circ}$ ; and the next ten days,  $99^{\circ}$  to  $99^{\circ} +$ .

CASE XC.—Male, aged eighteen; blow upon the head from a hammer; conscious; compound fissured fracture in left parietal region; no depression; no symptoms.

CASE XCI.—Male, aged twelve; ran into an iron post; compound depressed fracture of right frontal bone, encroaching upon coronal suture in temporal region; slight escape of brain substance; elevated piece of bone three quarters of an inch in

diameter; no general symptoms of cerebral injury. Had no subsequent symptoms, except for a single day following the operation, when he responded slowly to questions.

CASE XCII.—Male, aged thirty-five; blow upon the head from an earthen mug; compound fissured fracture of external table of posterior part of left parietal bone; no general symptoms.

CASE XCIII.—Female, aged thirty-seven; struck by a brick falling from a roof; compound depressed fracture of right parietal bone, three quarters of an inch from median line, double comminuted. One fragment removed and the other elevated. No general symptoms either before or after the operation.

CASE XCIV.—Male, aged sixteen; thrown from a horse; compound depressed fracture of left frontal bone, just above superciliary ridge; conscious and irritable; temperature,  $99^{\circ}8'$ ; pulse, 60, full. A piece of bone, an inch and a quarter by half an inch, completely separated and driven in upon the dura, elevated and removed under ether. Had no subsequent general symptoms except temperature, which for ten days was usually from  $99^{\circ}$  to  $100^{\circ}$ , and a somewhat irritable mental condition.

CASE XCV.—Female, aged seven; fell one flight of stairs over the banisters; struck her head; unconscious; vomited. Became dull and stupid on the second day; next day admitted to hospital. Hæmatoma in left parietal region, and linear fracture, discovered by incision, confined to left parietal bone. Temperature,  $99^{\circ}$ . No subsequent symptoms.

CASE XCVI.—Male, aged thirty-two; stabbed in the forehead with a pocket knife. Three days later no general symptoms. Temperature,  $99^{\circ}$  to  $100^{\circ}$ ; pulse, 76. After incision, the knife blade could be seen broken off at the level of the surface of the bone, an inch and three quarters above left supra-orbital ridge, and an inch and a half to left of median line. A button of bone, which included the knife point in the center, was removed by the trephine. The point had penetrated the brain a quarter of an inch. Dura incised and closed by suture. No subsequent symptoms.

CASE XCVII.—Male, aged twenty; knocked down by a blow from a heavy stick; unconscious; linear fracture from just above left superciliary ridge, extending into parietal bone, and incised wound. No general symptoms.

CASE XCVIII.—Male, aged thirty-one; struck by a shower of bricks; compound depressed fracture of right parietal bone. Trephined, and loose fragment of inner table, half an inch square, removed. No general symptoms.

CASE XCIX.—Male, aged twenty-six; fell thirty-five feet from a scaffold; had been temporarily unconscious. A fragment of the right parietal bone, near its upper posterior angle, including both tables, had been torn out and was missing, two inches by one inch and three quarters in diameter. The inner table was comminuted, and fragments pressing upon the dura were removed. No fissures. Dura uninjured. No disorders of sensation or other general symptoms. Temperature,  $99^{\circ}$  to  $100^{\circ}+$ .

CASE C.—Female, aged forty-five; fell down stairway at elevated railroad station; unconscious. Admitted after five days. Hæmatoma over left eye, which had been incised; fissure, extending into frontal sinus, could be detected through the incision. The only general symptom was occipital headache for some days after the injury was received.

CASE CI.—Male, aged eight; kicked by a horse; compound depressed fracture of right frontal bone, just above frontal sinus and near the median line. Elevated on the fourth day. Dura uninjured. Opening in the skull which remained was three quarters of an inch in diameter. Had no previous general symptoms. Temperature, from  $99^{\circ}$  to  $99^{\circ}8'$ ; after the operation, rose in twenty-four hours to  $103^{\circ}$ , and in forty-eight hours

to  $104^{\circ}$ . In the next five days it fell gradually to  $99^{\circ}$ , and remained  $99^{\circ}+$  for ten days following. Once during this time—on the fifteenth day—some serum escaped from the wound at the time of dressing. On the twentieth day some laudable pus escaped, also at the time of dressing, and a probe was carried two inches and a half into the frontal lobe parallel to the orbital plate. The next day the dura was incised to the extent of the cranial opening, and from two to three ounces of laudable pus evacuated. The probe could be carried backward two inches and a half parallel to the cranial wall on the external aspect of the hemisphere, as well as two inches and a half parallel to the orbital plate. The temperature at this time was  $99^{\circ}2'$  and pulse 96. There were no general symptoms, except a little mental dullness or apathy and slight right lower facial paralysis. His general condition was also becoming asthenic. The cavity was irrigated and drained by tube. Temperature rose next day to  $102^{\circ}+$ ; became normal in a week. Facial paralysis entirely disappeared in ten days. Discharge ceased during the third week. Mental condition became normal, and nutrition rapidly improved after the first few days. There was a fungus, not larger than a hazel-nut, which spontaneously disappeared. The external wound was entirely healed in little more than a month, and no symptoms of any kind remained.

#### INJURIES OF THE ENCEPHALON.

CASE CII.—Male, aged forty-one; fell upon his face; contusions most marked on left side of face and eyes; violent delirium for two days. Temperature,  $103^{\circ}$  to  $104^{\circ}$ . On the sixth day again became delirious, and later unconscious and violently responsive to irritations. Temperature was at no time below  $100^{\circ}$ , and was  $103^{\circ}$  just previous to death, which occurred at the end of six days.

*Necropsy.*—Hæmatoma and small scalp wound in right parietal region. Thin cortical coagulum over left occipital lobe, extending into median fissure. Subarachnoid serous effusion.

CASE CIII.—Male, aged sixty; pushed down three steps of a stairway, and sustained minor superficial injuries. No head symptoms till the fourth day, when he had four convulsions. There was one the next day, and afterward they occurred with increasing frequency till his death on the eighth day. Each one began by twitching of the muscles of the face, with the head and eyes turned to the left, and these extended to the left arm and finally to the left hand. The right side was not involved at all. Temperature on admission,  $100^{\circ}$ ; in twelve hours,  $103^{\circ}$ . From this time it varied from  $103^{\circ}$  to  $104^{\circ}$  till six hours before his death, when it became and continued  $105^{\circ}$ .

*Necropsy.*—No lesion of scalp or skull. Subdural hæmorrhage over whole right cerebrum, and extensive laceration of right temporo-sphenoidal lobe.

CASE CIV.—Male, aged thirty-two; fell upon the sidewalk; scalp wound in left occipito-parietal region. Admitted to hospital ten hours later. Conscious and rational, but dazed, and with extreme muscular tremor. Two hours afterward the patient had a general convulsion. From this time, during periods of about six hours, there would be a succession of convulsions, with intervals of unconsciousness or delirium, followed by an equal period during which he would remain quiet and rational. The convulsions were all general from beginning to end, without recognizable initial symptom. Died in two days.

*Necropsy.*—Scalp wound, as previously noted. No lesion of skull. Cortical hæmorrhage on the right side of the vertex, from anterior border of frontal lobe to posterior fissure of Roland, and covering the temporo-sphenoidal lobe laterally and at the base. Deep laceration of right frontal lobe, through the cortex, upon anterior and lateral borders, and extending well into the parietal region.

CASE CV.—An unknown man was found in the street, leaning against a fence in an upright position, dead.

*Necropsy.*—Hæmatoma over right side of the vertex; no lesion of the skull; blood fluid and viscera generally much congested; area of contusion and laceration over greater part of left frontal and temporo-sphenoidal lobes; subdural hæmorrhage over whole left hemisphere.

CASE CVI.—Male, aged thirty; found unconscious and supposed to have jumped or fallen from a second-story window. Wound over right eye and fracture of the nasal bones; coma profound; stertor; pupils contracted. On the two following days the temperature rose progressively from  $101^{\circ}$  + on admission to  $104.5^{\circ}$ ; pulse full, respiration rapid. Patient could be roused by pressure on supraorbital nerve. On the third day still deeper coma, dysphagia, continued irritability, and restlessness, and temperature still  $104.5^{\circ}$ . Death at end of four days; temperature,  $107^{\circ}$ .

*Necropsy.*—No lesion of skull; no meningeal lesions; small cortical hæmorrhage over posterior part of left parietal lobe, and small laceration of brain at parieto-occipital junction; both cerebra hyperæmic.

CASE CVII.—Male, aged forty; fell down stairs. Admitted to alcoholic ward and transferred to surgical service next day. Slight scalp wound above right ear; comatose, but later could be roused sufficiently to tell his name; temperature,  $103.4^{\circ}$ ; restless; hyperæsthetic; pneumonia discovered; died next day.

*Necropsy.*—Left lung pneumonic; lower lobe in second stage, upper lobe in first stage; no lesion of the skull; dura mater adherent to the calvarium; the left hemisphere on its upper surface was completely covered by an organized false membrane, which also dipped into the median fissure and covered its internal surface. This membrane was divisible posteriorly into two layers; it was thin anteriorly, but fully an eighth of an inch in thickness in its posterior part; its upper surface was smooth, non-adherent, and comparable in appearance to a section of raw beef; its inferior or cerebral surface was smooth, velvety, non-adherent, and could be raised without injuring the arachnoid; it did not dip into the sulci; it was traversed by minute vessels and studded with some fifteen or twenty grayish, caseous, and partially calcareous nodules, varying in size from that of a robin-shot to that of a buckshot. Similar nodules were found in the basilar vessel, which were generally atheromatous. No recent lesion of the brain was discovered, except general contusion indicated by moderate hyperæmia and some capillary extravasations.

His wife subsequently stated that he had never lost a day's work by reason of sickness, and that he had never had even temporary loss of consciousness or paralysis.

CASE CVIII.—Male, aged fifty-seven; fell from his car; unconscious; large hæmatoma over left parietal region; respiration slow and stertorous double facial paralysis and cheeks flapping; complete right hemiplegia and anesthesia; temperature,  $99^{\circ}$ . Trephined over left motor area; dura pale, tense, and bloodless; no brain pulsation. After incision of dura, serum escaped freely and the quantity increased when the head was so turned as to drain from the base. No blood clot found. Temperature at time of operation had risen to  $103.4^{\circ}$ ; six hours later it had fallen to  $98.6^{\circ}$ . The patient had regained consciousness and could articulate, and gave his name and address. Hemiplegia not relieved. After twelve hours, pulsation in the brain returned and he could speak rationally and intelligently, though with difficulty. Two hours later still he had a slight convulsion and death followed in four hours. The temperature remained at  $98.6^{\circ}$  after the operation for fourteen hours, and it then rose steadily to  $104.6^{\circ}$  just previous to death. The lower

face continued paralyzed and the respiration became frequent and insufficient.

*Necropsy.*—No lesion of skull; laceration of external border of right cerebellum anteriorly, from which clot had formed about circle of Willis upon anterior part of pons and in transverse fissure in front of left cerebellum; the vessels were atheromatous; the interior of the left occipital lobe was filled with clot which had completely broken down its structure; the left lateral ventricle was filled with blood which had broken through the septum into the right lateral ventricle and also communicated with the blood cavity in the occipital lobe.

CASE CIX.—Male, aged sixty-three; struck by some part of the machinery of his engine; no general symptoms; temperature,  $100^{\circ}$ ; wound in posterior parietal region in median line and curving to the right; contusion over left parietal eminence; temperature second day,  $103.2^{\circ}$ ; delirious in the night; temperature third day,  $101.8^{\circ}$  to  $101^{\circ}$ ; headache; fourth and fifth days, temperature,  $103.4^{\circ}$  to  $103^{\circ}$ ; no general symptoms; sixth day, temperature,  $106.4^{\circ}$ , pulse, 140; restless and irritable, but rational; weaker; died on the eighth day; temperature last two days from  $105^{\circ}$  to  $105.2^{\circ}$ ; post-mortem temperature,  $104^{\circ}$ . A few hours previous to death there was muscular rigidity of all the extremities, most marked on right side and especially in right arm. There was perforating ulcer of the cornea.

*Necropsy.*—No lesion of skull or meninges; no hæmorrhage; no lacerations; cortex of brain and meninges hyperæmic; brain substance moderately edematous and minute vessels filled with coagula; this condition involved corpora striata, optic thalami, pons, and cerebellum, and was most pronounced on left side and at the base; no minute extravasations; both lateral and both inferior petrosal sinuses were filled with decolorized thrombus, extending into jugular vein on the right side; the thrombus was colored only near the torcular Herophili.

CASE CX.—Male, aged sixty; fell two stories to the sidewalk. Contusion of left eye and slight contusion just above it; temperature,  $101.4^{\circ}$ ; delirium; pupils and respiration normal; pulse, 114. Later symptoms: patient very irritable; cried out and tried to get away when touched, but replied rationally to questions; incontinence of urine and feces; delirium continued; died on the fifteenth day; temperature rose to  $103.2^{\circ}$  on the fifth day and then fell very gradually to  $100^{\circ}$ . The day before death it was  $103.4^{\circ}$ , was  $103.8^{\circ}$  five hours ante mortem, and  $104.2^{\circ}$  one hour post mortem. General symptoms remained unchanged.

*Necropsy.*—No fracture; subarachnoid hæmorrhage over both hemispheres, forming a sheet which was thickest about occipito-parietal junction on both sides; some subarachnoid serous effusion in left frontal region; general contusion, which was most marked on left side; hyperæmia and punctate hæmorrhages.

CASE CXI.—Male, aged forty-five; cause of injury unknown; found unconscious in the street and admitted to hospital after forty-eight hours; contused wound in right parietal region; muttering stupor; rigidity of left arm; right hemiplegia, which was incomplete, but most marked in right arm; pulse, 60; temperature,  $101^{\circ}$ . On the third day the rigidity of the left arm was increased, and the paralysis of right arm was complete; paralysis of right leg was nearly so; coma absolute; pulse, 128; temperature,  $105^{\circ}$ . Trephined over motor area and incised the dura. Pulsation of brain absent at first, but soon returned in some degree. His movements became freer, and he began to utter articulate sounds. Signs of sensibility increased; pulse, 108; temperature still  $105^{\circ}$ . Died next day.

*Necropsy.*—Moderate subacute arachnitis over anterior two thirds of upper surface of right cerebrum; laceration of left



temporo-sphenoidal lobe, excavating and filling with clot its whole inferior structure. The hemorrhage extended downward around the circle of Willis and upward upon the cerebrum, mainly upon the occipital, but also in patches upon the frontal and parietal lobes.

CASE CXII.—Male, aged sixty; found unconscious in bed; seemed to be in perfect health when he retired to his room on the previous evening. He was heard moaning; no evidence of injury could be discovered; stertor; pupils normal; rigidity of right side; pulse 120 and weak; temperature, 100°. On the next day the right side was less rigid; the second day he was comatose; temperature, 103.2°, and he died.

*Necropsy.*—No lesion of scalp or skull; large amount of serum under the arachnoid. There was a very soft elliptical area of disintegrated brain tissue an inch and a half by three quarters of an inch in diameter upon the anterior part of the left occipital lobe, near the median fissure. There was a similar area, smaller in size, on the under surface of the same lobe, but with disintegration less advanced, and containing a clot not yet decolorized. There was a red, firm clot beneath the latter and deep in the substance of the cerebellum of more recent formation. The temporal artery was atheromatous, but none of the basilar arteries were diseased.

CASE CXIII.—Male, aged thirty; fell down stairs; consciousness was lost, and only partially restored. He fell out of bed that night, and again the next day, striking each time upon his right side. Admitted to hospital that evening. No external evidence of injury except slight contusion over crest of right ilium. Rational, but slow to respond to questions; left pupil slightly dilated; temperature, 99°. The following day he again fell out of bed, and again the day after, always on the right side, and there was a constant tendency to move to the right side of the bed, which was quite level. Some left paresis and some difficulty in swallowing, which he referred to the left side of the throat; transient facial paresis. The amount of paresis and the condition of the left pupil varied from day to day. His mental condition deteriorated; he was stupid, rambling in talk, delirious, apathetic, and had delusions. At first urine, and later feces, were voided unconsciously. His temperature for ten days was 99°+; it then began to rise and was 100°+ to 101°; pulse usually from 84 to 96, and respiration nearly normal. On the fifteenth day he was trephined over the right motor leg area, and a small subcortical cavity discovered, from which half a drachm of yellowish fluid was removed. This fluid was subsequently found to contain numerous leucocytes. There was no marked change in his symptoms after the operation. Temperature was a trifle lower—99° to 100°—till the eleventh day, when it rose to 104°, fell the next day to 100°, and rose again to 104°, when he died from asthenia on the twenty-eighth day of his admission.

*Necropsy.*—Large subarachnoid serous effusion compressing frontal lobes. General cerebral hyperemia and many minute vessels filled with coagula. The brain substance around the small cavity discovered during life was softened, stained a reddish-gray color, and it contained minute extravasations.

CASE CXIV.—Male, aged twenty-nine; was found unconscious in Central Park. He was taken to a hospital, sent to court charged with intoxication, and afterward admitted to Bellevue, still unconscious. Small contused wound in right frontal region; pupils slightly dilated; complete left hemiplegia and hemianesthesia; slight left facial paralysis; temperature, 106°; pulse, 140; respiration accelerated; convulsions shortly after admission, which were repeated at frequent intervals; initial symptom in the mouth and face; arms and legs gradually involved; trephined over junction of right arm and leg areas by house surgeon; result negative; temperature two

hours later, 107.4°, and three hours later still he died in a convulsion. The ventricle was aspirated in the operation; temperature forty-five minutes post mortem, was 109.4°.

*Necropsy.*—Brain and meninges excessively hyperemic; a small tumor as large as a pea was found in right lower face area; the surrounding brain tissue was disintegrated, forming a small cavity; no hemorrhages; the viscera were generally soft and congested.

CASE CXV.—Male, aged thirty-seven; was found at the bottom of a stairway with his feet uppermost; unconscious; pupils contracted; muscular rigidity, especially marked in the legs; pulse rapid; stertor; died in two days without having regained consciousness.

CASE CXVI.—Male, aged twenty-six; thrown out of a wagon and struck his head; unconscious, but conscious on admission; contusion in left parietal region; became irritable, and later comatose; died suddenly five hours afterward.

CASE CXVII.—Male; struck by a cleat falling from aloft aboard ship; large hematoma covering whole right side of the head; unconscious; slight rigidity of left side; pulse full and slow; died in fifteen minutes after admission.

CASE CXVIII.—Male, aged thirty-two; struck with a shovel; contusion of the right posterior parietal region; pulse full and slow; temperature, 100°; pain in back of the head; dilatation of left pupil; rigidity of flexor muscles of the arms; somnolence and restlessness. After twenty-four hours patient became stupid and mildly delirious; left pupil widely dilated; urinated unconsciously; left arm only moved when irritated; sensation slightly more acute on right side; dysphagia marked; left pupil irresponsive to light. His condition varied from time to time for the first two weeks; left pupil more or less dilated and more or less irresponsive to light; mind obscured and apathetic; some ptosis of left eye. After that time his mind became clear, and he could intelligently describe the manner in which he received his injury. Paralysis of the left external rectus; optic nerve and retina normal; perforation of left tympanum and puriform discharge; some left facial paralysis. He was discharged at the end of two months. His ptosis and external strabismus had disappeared, and there was only a perceptible trace of the paralysis of the lower face. His left hemiparesis and anesthesia were no longer noticeable. He was dull and stupid, which his family said was his normal condition.

CASE CXIX.—Male, aged twenty-five; fell from a truck, striking his forehead; unconscious for twenty-four hours; slightly delirious for two days; pain in frontal region after that time; temperature, 100°, followed by mild dementia, which continued till his discharge.

CASE CXX.—Male, aged twenty-one; fell sixty feet down an embankment; unconscious; afterward, violent delirium lasting a week; then admitted to the hospital, still delirious, but more quiet; suppurating scalp wound external to right frontal eminence; bone exposed; also double fracture of right inferior maxilla. The following day he had eleven epileptiform convulsions within two hours. Each one began with twitting in right hand and arm, extending to left arm and then to both legs, and finally a general convulsion was established. Face not much involved, but eyes deviated to the right. After these attacks he remained unconscious for one hour; the right arm was then found to be anæsthetic, and with the right leg paretic. The next day he had one similar attack, but he was more rational afterward and recognized his paretic condition. On the next day he had six convulsions within a little more than two hours, each one beginning on right side of the face and extending to right side of the body before becoming general, and the right arm was paralyzed for five minutes afterward. In the

next few hours he had six others, one of which was confined to right side of the face.

He was then trephined over left face area and the opening freely enlarged. Dura tense and incised, but no lesion discovered. He was then trephined through the exposed bone on the right side without result. No further convulsions occurred. The next day he was entirely rational, and it was discovered that he was aphasic. Some difficulty in articulation previous to the operation was ascribed to the fractures of the jaw. He had both motor and sensory aphasia. Called his own name McNannold. He was discharged at the end of a month. His wounds were entirely healed, right arm still parietic, and mind clear. He had some hesitancy in speech, and the selection of words required a little time. His temperature ranged from  $99^{\circ}$  to  $101^{\circ}$  during his whole convalescence.

CASE CXXI.—Male, aged twenty; cause of injury unknown; unconscious for a short time; scalp wound in left parietal region near the mesian line, and a large hematoma just behind it in posterior parietal region. He had no general symptom, except nearly complete paraplegia with flaccid muscles and somewhat increased reflexes. There was no evidence of specific disease, and it was possible to verify the fact that no paralysis had existed previous to this recent injury. He was discharged at the end of six weeks and could walk fairly well. The diagnosis was cortical hemorrhage from direct contusion of the brain, extending from left motor leg area across the median line into the corresponding area on the right side.

CASE CXXII.—Male, aged twenty-one; cause of injury unknown; found unconscious. Committed as drunk and disorderly, and sent to Bellevue as a case of alcoholism. He again became unconscious and was constantly crying out, but always a single phrase. He was restless and hyperæsthetic, and the muscles of both sides were generally rigid. There was a slight scalp wound in right temporal region; incision disclosed no fracture. The day following he was more quiet and the muscles were less rigid. Partial paralysis of the lower left face was developed. He became rational, but apathetic. Then there were two days more of active delirium, after which he again became quiet, but had delusions. He was coherent in speech, though voluble, loquacious, and silly. He had sensory aphasia and agraphia, and his memory of recent events returned; he thought, however, he was born in September, 1891—two months before. In notation at dictation he interpolated figures, as in writing 495 he wrote 490005. He could write two figures correctly, but not more. After his discharge he returned to the hospital some months later, and was noisy and excitable. Subsequent inquiry at the station-house made it probable that he was not intoxicated at the time of his arrest. He remained unconscious from early evening all night. When he was finally roused he made strenuous efforts to speak. He was only able to say "Peter," his first name, which he repeated again and again, and evidently strove to give his last name. Temperature,  $100^{\circ}$  to admission; from  $100^{\circ}$  to  $101^{\circ}$  for five days, then normal. After that time averaged  $98.5^{\circ}$  to  $99.5^{\circ}$ .

CASE CXXIII.—Male, aged twenty-one; cause of injury unknown; found unconscious in the street; contusion of left eye and wound over superciliary ridge. On admission, he looked about with a vacant stare, but could not be induced to speak. Next day he had delusions and failed to recognize his family. His subsequent symptoms were all mental. Memory of recent events lapsed. Never spoke except when disturbed, then answered questions intelligently but mechanically. For three nights he became violently delirious, and attacked his neighbor in the next bed; then he became quiet again, and began to manifest some interest in what passed about him. Two weeks

from the time of his admission his condition suddenly improved, and he began to remember some things which immediately preceded his injury. For the ensuing two weeks it was mainly noticeable that he never suggested or carried on any sustained conversation, and that he laughed much and without due cause. In the next and final two weeks of his continuance in the hospital he ceased to laugh inordinately or causelessly, and his memory seemed to be restored in reference to matters up to the time he was hurt, and since his recovery of consciousness. The only abnormal indication in his appearance was a slightly weak expression in his face. Temperature on admission,  $99.2^{\circ}$ ; afterward from  $99^{\circ}$  to  $101^{\circ}$ .

CASE CXXIV.—Female, aged seventeen, fell three stories through a hatchway; contusion of left occipital region; no fissure found on incision. She was unconscious, with muscular rigidity of all the extremities, and was irritable when disturbed. She moved the right arm and left leg only. Temperature,  $100.2^{\circ}$ . Delirious on the fourth day, and noisy and excitable for several days afterward. There was left paresis and dilatation of left pupil on the tenth day, and at the same time incontinence of urine and feces which continued eight days. Temperature was  $100^{\circ}$  for the first five days,  $99^{\circ}$  for next five days, and then became normal. It rose on the thirteenth day from  $99^{\circ}$  to  $103.5^{\circ}$ , and on the next day to  $104.5^{\circ}$ . For the next ten days it was usually from  $102^{\circ}$  to  $103^{\circ}$ , at which time she was removed from the hospital. She subsequently recovered. She was of bad constitution, had inherited syphilis, was deaf, and had interstitial keratitis in both eyes, with loss of sight in one from opacity of cornea.

The following cases of idiopathic lesion are added to illustrate simulated traumatism:

a. Male, aged fifty five, fell upon the sidewalk, and, after rising and walking a short distance, fell again. Upon admission he had a small wound in the median line of the frontal region. He smelled strongly of spirits and was ascertained to be of intemperate habits. He was unconscious from the time he fell until he died, seven hours later. He was restless, and upon irritation had muscular spasm of both lower and upper extremities. He had incontinence of urine and feces, dilated pupils, and Cheyne-Stokes respiration. No paralysis. Temperature,  $103.4^{\circ}$ ,  $104^{\circ}$ , and  $105^{\circ}$ . It was subsequently learned that the scalp wound was received two days previously, and that the spirits of which he smelled so strongly had been spilled upon him in an effort to restore him to consciousness before admission.

Necropsy.—Chronic meningitis with great arachnoid opacity but no serous effusion. Basilar arteries extremely atheromatous. Both lateral ventricles enormously distended with very bloody serum. Clot extended through each posterior cornu. The right optic thalamus was swollen with clot which also filled the third ventricle.

b. Male, aged seventy-one, said to have accidentally fallen from a chair four days previous to admission; no loss of consciousness; subsequent delirium; required mechanical restraint till his death, twenty-four hours later; pupils contracted; posterior cervical muscles rigid; hyperæsthesia; retention of urine; temperature,  $102^{\circ}$ ,  $102^{\circ}$  to  $103^{\circ}$ ; pulse, 90 to 114.

Necropsy.—Abrasion of the nose. Dura mater adherent to the calvarium, and arachnoid to the brain. Little serous effusion. Some opacity of the arachnoid. Meningeal and cerebral vessels hyperæmic. Cortex softened.

The result of an analysis of the preceding cases may be expressed in a brief

## SUMMARY.

I. <i>Fractures of the Base.</i> .....	70
Recovered.....	21
Died.....	49
Number of necropsies.....	35
II. <i>Fractures of the Vertex.</i> .....	31
Recovered.....	21
Died.....	10
Number of necropsies.....	10
III. <i>Encephalic Injuries without Fracture.</i> ...	23
Recovered.....	7
Died.....	16
Number of necropsies.....	13
Total number of recoveries.....	49
" " " deaths.....	75
" " " ".....	124
" " " necropsies.....	58

## NECROPSIES.

I. <i>Fracture of the Base.</i>	
Involving posterior fossæ.....	7
" middle fossæ.....	6
" middle and anterior fossæ.....	9
" middle and posterior fossæ.....	11
" anterior and posterior fossæ.....	1
" all fossæ.....	1
.....	35
Total number involving middle fossæ.....	27
" " " posterior fossæ.....	20
" " " anterior fossæ.....	11

## Complications.

Laceration and resulting hæmorrhages.....	9
" " general contusion.....	6
" " meningeal contusion.....	6
" " thrombi, hæmorrhages.....	2
" " epidural hæmorrhages.....	6
" " meningeal contusion, epidural hæmorrhages.....	1
" " general contusion, epidural hæmorrhages.....	1
Contusion and abscess.....	1
General contusion and epidural hæmorrhage.....	2
Meningeal contusion.....	1
.....	35
From direct violence.....	31
" <i>contre-coup</i> .....	4
II. <i>Fracture of the Vertex.</i>	
Involving frontal bone.....	4
" parietal bone.....	1
" occipital bone.....	1
" parietal and occipital bone.....	1
" parietal and frontal bone.....	1
" temporal bone.....	1
.....	9

## Complications.

Laceration and resulting hæmorrhage.....	5
" " general contusion.....	2
" " atrophy.....	1
" meningeal and general contusion..	1
General contusion and epidural hæmorrhage.....	1
.....	10

III. *Injuries of the Encephalon without Fracture.*

## Varieties.

Laceration and resulting hæmorrhage.....	5
" " meningeal contusion.....	2
" " general contusion.....	1
Meningeal contusion.....	1
General contusion.....	2
" " and thrombi.....	1
" and meningeal contusion.....	1
.....	13

## In Fifty-eight Necropsies.

Laceration and resulting hæmorrhage.....	19
" " general contusion.....	8
" " meningeal contusion.....	8
" " epidural hæmorrhage.....	6
" thrombi, and hæmorrhages.....	2
" general, and meningeal contusion.....	2
" and atrophy.....	1
" meningeal contusion, epidural hæmorrhage.....	2
.....	48
General contusion.....	2
Meningeal contusion.....	2
General contusion and epidural hæmorrhage.....	3
General contusion and thrombus.....	1
" " " meningeal contusion.....	1
Subcortical contusion and abscess.....	1
.....	10

## Total number of cases in which injury was received by

<i>Contre-coup</i> alone.....	31
Direct violence alone.....	5
<i>Contre-coup</i> and direct violence.....	19
Unknown.....	2
Unrecorded.....	1
.....	58

## Pseudo-injuries.

Apoplexy.....	1
Arachnitis.....	1
.....	2

In the majority of instances the subjects were males in adult life. Vocation, the blundering helplessness of inebrity, and the homicidal passion sufficiently account for



the influence of age and sex in the production of these injuries.

*Fractures.*—It is a noteworthy fact that so many injuries of the head—nearly sixty per cent.—involve fracture at the base. I have ranked as basic fractures all those which have involved that region, even though beginning at the vertex, because it is upon the implication of the base that all the so-called characteristic symptoms depend. In fact, fractures of the skull which do not begin at the vertex are exceptional. I have found upon necropsic examination but four cases in which fracture at the base was not continuous with a fissure extending from the point upon the vertex at which the violence was inflicted. These four, which began and ended in the base, were evidently from *contre-coup*. That they were the result of violence acting directly upon the vertex was proved by the history of the injury, as well as by existent wound, contusion, or fracture. In neither one was there the slightest reason to suspect that the force was transmitted through the spinal column. The greater frequency of fractures which extend to the base, when compared with those which are confined to the vertex, depends simply upon the fact that, under ordinary circumstances, the physical properties of bone are such that force, even when of crushing character, will not expend itself wholly upon the point of impact, but will extend to a considerable distance. That the fissure extends from vertex to base, and not from base to vertex, is proved, even in the absence of a history, by the mute evidence of the superficial injury, and by the narrowing of the fissure as it passes downward. The explanation of the fact that fracture through the middle is more frequent than through the other fossæ is equally simple. The experiments of Aran have shown that when any part of the vault is subjected to violence it is the corresponding part of the base which suffers. It follows that the central or parietal region is the one most exposed to violence, and it is corroborated by post-mortem examination.

Four cases, aside from those produced by *contre-coup*, are of special interest simply as fractures. The first is a separation of the temporal bone into its constituent parts—squamous, petrous, and mastoid—in an adult male, the result of an apparently inadequate cause. The specimen was shown to this association two years ago. The second was a comminuted fracture of nearly the whole occipital, the posterior part of both parietal, and the right temporal bones, in which the fragments were completely detached from each other. This, like the first, was occasioned by a fall in the street, and was accompanied by extensive injuries of the brain, sinuses, and membranes. The patient recovered partial consciousness, and lived for a week's time. The third involved all the fossæ on both sides from a fall from the mast-head, and the patient survived two hours. This case I believe to be the first on record in which all the fossæ were involved in fracture. The fourth case was a wide separation of the coronal suture on both sides, occurring in an adult without concomitant fracture.

The most practical comment to be made upon fractures of the skull is that in themselves they are absolutely unimportant. It is only by their complications, immediate or remote, that they involve danger to life.

#### COMPLICATIONS OF FRACTURES.

The complications of fracture are hæmorrhages, thrombosis, lacerations, contusions, and paralyses. Their derivatives are meningitis, abscess, and atrophy. All of these may be produced directly from injury to the encephalon without fracture, with the exception of one form of hæmorrhage. If epidural hæmorrhage ever occurs without the intervention of fracture, I have never seen it in necropsies, or had reason to suspect it in recovering cases.

Fractures of the skull without complication are not only without importance or consequences, but they are devoid of symptoms. A simple fissure of the posterior fossa would probably be unsuspected, for symptomatic cervical ecchymosis is of the rarest occurrence. A simple fracture of the vault is often overlooked in the absence of pressure symptoms. In fracture at the base, displacement of the fragment does not occur, or is insufficient to occasion trouble, and when the patient survives, union, of course, is without provisional callus. The very general existence of complications, however, often of the gravest character, has given fracture of the base vicariously both an importance and a symptomatology.

The encephalic lesions which complicate fracture include all those which occur independently, and therefore may be considered at once, from a double point of view, as complications and as primary injuries.

#### HÆMORRHAGES.

*Epidural hæmorrhage* is perhaps the most characteristic complication of fractures. In moderate quantity from the osseous or smaller meningeal vessels, it is the usual source of the diagnostic hæmorrhages from the ears, nose, or mouth, and into the orbital and subconjunctival tissues. In larger amount and as a source of danger, it is derived from the larger meningeal vessels, notably from the middle meningeal artery. In at least two and possibly four cases it was the immediate cause of death. In a third, involving fracture at the base, life was saved by operation, although the clot removed measured four ounces and a half by volume. Such a case is in evidence that the brain-tissue is really susceptible of compression.

*Subarachnoid or cortical hæmorrhage* is ordinarily derived from laceration of the cortical substance, and is often the direct cause of death, as well as of certain of the precedent symptoms. From a laceration at the base, whether of the frontal or temporo-sphenoidal lobe, it may cover the whole superior surface of one or both hemispheres, and cause various localizing symptoms which accompany or precede those of fatal pressure. From a laceration of the occipital lobe or cerebellum, it may cause immediate death from compression of the medulla; or the hæmorrhage from the torn vessels of the brain, even in extensive laceration, may be insufficient to seriously modify symptoms or hasten the fatal termination. A moderate amount of cortical hæmorrhage from rupture of the vessels of the pia is also one of the results of meningeal contusion.

*Subdural hæmorrhage* I have found most frequently to depend upon rupture of the arachnoid and escape of blood

from the meshes of the pia mater into the arachnoid cavity. In a smaller number of instances its source has been in the meningeal vessels. In a recent case there was rupture of the dura mater, and the blood was of epidural origin. Cortical hemorrhage, however, is, of all others, the one most frequently encountered. The majority of lacerations reach the surface of the cortex, and superficial hemorrhage results.

(To be concluded.)

## THE VALUE OF SPRAYS IN THE TREATMENT OF CATARRHAL AFFECTIONS OF THE UPPER AIR PASSAGES.\*

By CLARENCE C. RICE, M. D.,

PROFESSOR OF DISEASES OF THE NOSE AND THROAT,  
NEW YORK POSTGRADUATE MEDICAL SCHOOL AND HOSPITAL.

A topic so general in character as this would more properly appear on the programme as a subject for discussion rather than as the title of a paper. This subject is submitted, however, chiefly for the purpose of obtaining the views of the members of this association. A consensus of opinion gathered from a society of physicians like this, who have for years made use of and carefully noted the effects of all the many applications of atomized remedies upon mucous membranes, would be especially valuable if not infallible. It is perhaps the tendency, as one increases the years of his practice, to diminish the number of drugs employed, and this is true both in prescription writing and in the selection of remedies for local application to mucous surfaces. While something may be said in favor of such a habit, in that only those remedies are used which have been tried and found useful, there is danger, on the other hand, that attachment to a few pet drugs will prevent the trial of never and perhaps more useful medicines. The very busy practitioners of our association are hardly in the position to experiment with new remedies locally applied unless they continue their dispensary practice, so that the young men must be depended upon to keep the materia medica up to date. However it may be in other towns, in New York it may be stated truthfully that one great obstacle in the way of studying the effects of atomized medicines upon mucous membranes is the difficulty, both in our colleges and dispensaries, of keeping the spray apparatus in working order. In teaching-institutions the instruments are at the mercy of the many working students, and in the dispensaries the authorities rarely have money enough or take sufficient interest to supply the necessary outfit. It is well-nigh impossible to keep apparatus which is used in common by many physicians in proper condition, consequently the treatment of catarrhal diseases by nebulized fluids has, in some of the dispensaries, given way to treatment by other methods, such as the insufflation of powders, local applications by means of brush or cotton applicator, and even surgical measures have been adopted, in some instances, where the spray tube would have been used

if it had been conveniently near and in working order. The wretched condition of the spraying apparatus in dispensaries and teaching-institutions is to be deplored, for such a state of affairs prevents not only the needful washing of mucous surfaces, but it also seriously hinders the trial by atomization of many drugs which, if not employed in dispensary practice, will never be used. The lack of means of treating catarrhal diseases by simple measures encourages unnecessary surgical methods. Occasionally we find a physician who deprecates the value of medication by spraying, who apparently arrives at this conclusion because he is unwilling to supply himself with air apparatus and spray tubes.

It is to be regretted also that the prescription formula employed in hospital and dispensary practice is so abbreviated and out of date that we lose the benefit of the use of many valuable medicaments which should be employed in varying strengths of solution. If it is conceded that the treatment of catarrhal diseases by the application of atomized drugs is at all efficacious, we should not allow such practice to fall into disrepute because of faulty apparatus.

It is not intended in this paper to speak of the merits of any particular line of remedies, or to call attention to any new drugs, or to compare the efficiency of medicines applied by atomization with that of the various other methods of making topical applications, but rather to consider some of the general principles upon which sprays should be employed in order to make them valuable medicinal agents.

It will be of no special interest to this association or of value to this short paper to relate the history of the development of the principle of atomization or nebulization of medicated fluids. The very simple spray producers of the present day were obtained only after repeated failures and changes, and this history is all fully told by Dr. Cohen in his book on *Inhalation: its Therapeutics and Practice*; also by Sir Morell Mackenzie; and, in a brief way, by nearly every text book relating to the treatment of the diseases of the nose and throat. When we remember how difficult it was to obtain the ordinary laryngeal mirror and to adapt it to its successful use, we need not be surprised that so simple an apparatus as the spray tube required the mechanical ingenuity of many minds before it was perfected. At one time the temptation to resort only to surgical methods was very strong, but treatment by sprays has maintained a prominent position through all the vicissitudes of practice.

There are a few practical clinical points bearing on the subject of treatment of catarrhal diseases by the atomization of drugs which may not have been recently considered, and it is of these I wish to speak. First, it may be said that the various petroleum products, starting with solid vaseline and followed by the semisolids and fluids, called by such names as "liquid vaseline," "albolene," "benzoinol," "glymol," lanolin, etc., have crowded out of use many of the old astringent drugs, and the change has been a beneficial one. Perhaps the most erroneous principle upon which atomized fluids have ever been used in the treatment of the nose was and is the prevalent practice of spraying vegetable and mineral astringents into the anterior nares for the

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purpose of curing hypertrophic rhinitis, attempting to astringe the nasal mucous membrane, which is an erectile structure, and thus endeavoring to diminish supersecretion. To the dismal failure of such practice, more than to anything else, are we indebted to the necessity which gave us nasal surgical instruments. I should like to ask this association if there is a single so-called astringent remedy, of any strength of dilution, which can be with benefit atomized into the anterior nares in cases of simple hypertrophic catarrhal disease. Are there any useful solutions of silver, or copper, or zinc, or tannic acid for such practice? Text-books have been at fault in printing such sprays for the treatment of anterior nasal disturbances. It required years to ascertain that such treatment was prejudicial. Solutions of the mineral astringents, of one half the strength of dilution usually printed, are capable, if thrown into the anterior nares with much pressure, of producing acute coryza, purulent disease of the accessory cavities, and inflammation of the middle ear. For the treatment of simple and hypertrophic catarrh of the anterior nares it is probable that no drug should be employed by atomization whose use is based upon its astringency. Astringency means here only irritation and inflammation. The material advance made when the vaseline preparations came into use and supplanted the old astringents was, first of all, due to the fact that the oily products were at least harmless—a simply negative value. Later they have been used in such ways and combinations as to be of positive benefit. The physiological action of the simple oily preparations is indefinite. They are certainly protective agents, both in hypertrophic and atrophic disease, and in this way they may be called sedative. They furnish a perfectly non-irritating vehicle for many combinations of medicine—such as cocaine, iodoform, aristol, oil of pine needle, menthol, thymol, resorcin, etc. The oil decreases the action of all these drugs—that is, their action is less in the oily vehicle than in watery solutions, or it might be more properly stated that the blandness of the oil softens the irritation which nearly every drug produces momentarily as it is thrown in spray against the mucous membrane—the mechanical concussion. The effect of menthol and the volatile oils in these oily vehicles upon mucous membranes is readily studied. They are at first stimulating, in the sense of increasing capillary circulation, and later (and this is their principal physiological action) they are sedative or antiphlogistic, since their evaporation is only effected by and with the rapid abstraction of heat from the tissues, a chilling of the surface, a contraction of the peripheral circulation. The first or stimulating effect spoken of is produced by the impact of almost any spray thrown against sensitive mucous surfaces; it might be termed mechanical or traumatic stimulation. The amount of stimulation is regulated by the temperature of the fluid and the force with which it is projected. As has been said, the oily vehicle lessens the first shock, which has always been an objection to watery solutions when used with pressure, and especially in cold weather. The protective, sedative effect of plain oily sprays in the nasal chambers, in many cases of simple and also in those cases of hypertrophic rhinitis where the turbinated structures are only

distended, is continued until what may be termed a "cure" is effected—that is, the turbinates become normally compressed and the secretions normal. I believe, however, that too long continuation of the use of the oily sprays in the nose tends to produce dryness of the surfaces and a contraction of the erectile tissues, which looks much like atrophy. I have noted this tendency to increased dryness, especially when these oily remedies have been sprayed upon the middle and post-nasal pharynx. Iodoform, iodol, and aristol seem to lose much of their characteristic effects when sprayed in these oily vehicles; they may still possess integrity enough to act as disinfectants, but their stimulating action in the healing of ulcerations can not be thoroughly relied upon when they are placed in oil. These remedies are much more effectively used when in ethereal solution, applied by applicators, or insufflated in powder.

One more point about oily sprays. It is, I believe, wise to employ them in those cases of nasal obstruction where there is a question as to the necessity of operative procedure—cases in which the obstruction is not great and congestion is a considerable factor. After the congestion has been controlled by means of the oily spray, there may be no demand for operation.

I spoke earlier in this paper of the harmful effect of throwing *watery astringent* medicaments into the anterior nares when the nasal chambers were not far advanced in disease. This objection does not hold good in atrophic rhinitis; here there is little sensitive tissue to irritate; but even here there is never occasion to atomize fluids of too strong solution, or impel them with pressure exceeding twenty-five or thirty pounds. I have noticed that these cases of atrophic rhinitis may be fired up into subacute inflammatory conditions by sprays where the middle turbinated bones are large and wedged down upon the septum. Disinfecting medications, applied by spraying, are invaluable in atrophic conditions, in ozena, in syphilitic rhinitis, in nasal polypi, and in purulent disease originating in the accessory cavities. Solutions of peroxide of hydrogen (from ten per cent. to twenty per cent.), of mercuric bichloride (1 to 4,000), of boric acid, of potassium permanganate, and of carbolic acid—these are all valuable agents when applied by atomization, and do more oftentimes than disinfect; they stop purulent discharges. The most commonly useful method of employing the spray is, in my opinion, with the up-tip spray tube directed toward the back wall of the pharynx and the post-nasal space. In the majority of cases of nasal disease the patient is not accomplishing all he can for his cure unless he has been taught to use the up-tipped atomizer behind the soft palate, a task which is correctly performed only when he has learned to breathe properly and to relax the palatal muscles. If anterior nasal spraying is useful in five cases, post-nasal is more useful in a hundred. The vault of the pharynx and the posterior wall can not be washed by anterior nasal sprays; but the nasal chambers, except in cases of atrophic disease, can be cleansed by atomized fluids thrown in from behind the soft palate. In spite of the intelligent work which has been done by this association in the treatment of atrophic diseases, a mild alkaline, stimulating, disinfecting so-



lution, sprayed up behind the nose three times daily by the patient, is perhaps as effective treatment as we can to-day command. The up spray, intelligently used, is a much better instrument than the douche, for, while it can be made to cleanse equally well, it does not present the same dangers of provoking inflammations of the ear. Besides, I believe that large quantities of fluid passed for a long time over mucous membranes, as is done in douching, wears away the healthy surface of a tissue and leaves it callous, compressed, and hardened. In the posterior nares mild solutions (two or three grains to the ounce) of the astringents—such as silver, copper, zinc, tannic acid, or the salts of iron—may be used with much more safety and benefit than in the anterior nares, for the irritation necessarily arising from the first effect of these sprays is expended upon the post-nasal pharynx, which does not suffer, and enough of the astringent medication reaches the nasal chambers proper to produce a beneficial effect.

The treatment of catarrhal diseases of the upper air passages has practically become limited to such *operative* measures as each case demands, followed by the application of drugs in powder or solution. Ninety per cent. of all topical remedies are applied in the form of sprays. Sprays are beneficial or harmful according to the manner in which they are used. Nice judgment is required in selecting not only the drug, but the exact strength of the solution suitable for the particular portion of the upper respiratory tract. A solution which might improve the middle pharynx or larynx would, if directed into the nose, cause an intense coryza, and possibly an acute inflammation of the middle ear. The pressure used should be regulated to suit the temperament of the patient, the local condition to be treated, and the situation to be reached. Who can believe that a cold solution of some harsh astringent sprayed upon the mucous membrane of a nervous patient will be of benefit? And we may sometimes add to these unfavorable conditions a chilly patient and an underheated operating office. The oils, under such circumstances, are much better than the watery solutions. It is easy to have a water bath to heat the solutions which are to be used. Cocaine has been of great service; for a very weak percentage of this—one half of one per cent.—added to our astringent sprays will to a great extent nullify the first irritating effect of the topical application. Very mild solutions of cocaine—less than one per cent.—are, perhaps, as useful astringents as we can employ, and none of the uncomfortable reactions which sometimes follow the stronger solutions are seen. Mild cocaine solutions seem to clinch the beneficial effects of astringents when they are used in combination. Cocaine seems to have justly supplanted solutions of opium, morphine, and bromide of potassium, and I know of no beneficial effect to be obtained from aconite preparations which cocaine does not more surely afford. The strength of the cocaine solutions can be more easily regulated than those of opium and aconite. I need not speak of the great value of mild cocaine sprays in the nose, post-nasal space, and larynx, in aiding first examinations and in making diagnoses. Cocaine sprays have rendered laryngeal manipulation and operation easy, and

have saved life in relieving laryngeal dyspnea until obstruction could be removed. The group of stimulating disinfectants represented by listerine, thymol, menthol, eucalyptol, oil of wintergreen, etc., cleanse and make comfortable the dry, congested air passages from the post-nasal space down as far as they penetrate. The evaporation of their volatile elements diminishes congestion for a time at least. I have already said that solutions for spraying should not be cold, and should be propelled with reasonable pressure; fifteen pounds is sufficient for the anterior nares, twenty-five for the posterior nares, and twenty-five or thirty for the lower pharynx and larynx. The treatment of catarrhal affections of the upper air passages by the application of atomized fluids will not lapse into disuse in our day, neither will such treatment render nasal surgery unnecessary. It is quite possible, however, that our new combinations of cocaine, menthol, etc., applied in oily vehicles, will diminish the number of nasal operations which to-day seem indicated.

123 EAST NINETEENTH STREET.

## TUMORS OF THE ORBIT AND NEIGHBORING CAVITIES.\*

By CHARLES STEWART BULL, A. M., M. D.

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF THE CITY OF NEW YORK; SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

(Continued from page 72.)

### CASE X. *Sarcoma of the Nose, Nasal Mucosa, and Orbit.*

Early in November, 1884, I was called in consultation to see a gentleman, aged fifty two, and learned the following history of his case: For many years he had been a sufferer from lupus of the face, which had first appeared as a small nodule on the left ala of the nose. It slowly extended in several different directions, healing as it extended, until the cicatrix and the sore covered a space as large as a silver half-dollar. It then remained quiescent for nearly two years, but subsequently extended upon the left side of the nose and orifice of the left nostril. During the past year its growth had been rather more rapid. When I saw him the growth had entirely occluded the left nostril, filled the posterior nares, and extended over the cheek and malar prominence and slightly into the orbit from the outside, pushing the eye upward, outward, and forward. It had also extended into the zygomatic fossa. The eyeball was still freely movable and the axes of the two eyes could be made parallel, when the diplopia which ordinarily existed disappeared. Vision was normal, the media were clear, and the fundus was healthy.

My opinion had been desired in regard to the advisability and feasibility of an operation, and I advised against any attempt to remove the external portion of the growth, on account of the great extent of diseased tissue and the impossibility of procuring a flap of sound skin of sufficient size to close the wound. There also seemed a probability that the growth had extended from the nasal meatus to the maxillary antrum, and any attempt to remove this part of the growth would have necessitated the removal of the anterior bony wall of the antrum. The growth in the naso-pharynx might be removed, and this would render the patient much more comfortable and his respiration easy, and this I advised should be done.

On November 13th the patient was etherized and with some difficulty the left nostril and naso-pharynx were cleared of the growth, part being removed through the nostril and part

through the pharynx. The tumor had been removed from the right side, and the growth developed along the nasal cavity on the left side beyond the reach of operative interference. The immediate result was a great improvement in the patient's comfort, which remained for nearly six months before his respiration became again obstructed. I declined any further interference on account of the hopelessness of the case. The progress of the disease was slow but steady. The whole left side of the face became gradually involved, the disease extending down to the angle of the jaw, over on the temple, and up on the forehead and bridge of the nose. The orbit filled up, apparently from the orbital margin, and the eye was pushed forward and inward toward the nose; the eyelids became involved, the cornea ulcerated and then perforated, and a large staphyloma developed and protruded between the swollen and half-closed lids. The patient lived for two years and a half after the operation, suffered greatly, and finally died from exhaustion. Throughout the entire course of the disease the progress had been from without inward, and the resulting disfigurement was unpleasant in the extreme. No autopsy was permitted, and thus no opportunity was offered of determining whether there had been any change in the microscopical character of the growth. Before I first saw the patient portions of tissue had been removed from the external growth on the nose and had proved to be lupus. The portion removed from the interior of the nose had the mixed appearance of both lupus and sarcoma.

**CASE XI. Caries and Abscess of the Orbital Walls.**—A little boy, R. P., aged three, was brought to me in November, 1884, with the following history: About two weeks before, the mother had noticed a staring appearance of the right eye, which increased to a positive protrusion of the eye. When I saw the child the lids were somewhat reddened and the exophthalmia was directly forward. Pressure of the eye backward gave an elastic sensation and caused some pain. Inquiry developed the fact that the child had had some symptoms of congenital syphilis at birth and that the father was undoubtedly syphilitic. The case was watched for several weeks, but nothing abnormal was observed except a slow increase in the exophthalmus. The eyeball was apparently normal in every respect. I suspected the presence of either a cyst or an abscess and advised an exploratory puncture. This was done and a small trocar was passed into the orbital tissue on the nasal side of the eye, but with no result. No trace of any growth could be felt in the orbit, and nothing was found in the nasal meatus or nasopharynx. The exploratory puncture, however, seemed to set up a more active process in the orbit, for the exophthalmus rapidly grew worse and the child began to complain of constant pain. A more extensive operation was then proposed and consented to by the parents. The conjunctiva was opened horizontally on the temporal side, the tendon of the external rectus was divided, and the eye turned strongly to the nose. The finger was then introduced and almost immediately felt a tumor, which seemed to occupy the apex of the orbit and to be firmly attached to the outer wall of the orbit far back. It had no attachments to the eyeball, and was easily detached from the orbital tissue and sheath of the optic nerve, but was with great difficulty separated from the periosteum on the outer wall of the orbit. In doing this the sac wall was ruptured far back and a quantity of ill-smelling pus came out, and the tumor collapsed. The sac wall was then carefully removed as far as possible, and the little finger being introduced discovered a small patch of denuded bone far back on the outer wall of the orbit. There had evidently been a focus of periostitis or perhaps of osteitis with caries, and an abscess had developed in the orbital tissue. The dead bone was scraped as well as possible, the cavity thor-

oughly washed out with a solution of sublimate (1 to 2,000), and a loop of carbolicized silk inserted for drainage.

The case did remarkably well. Some suppuration occurred from the orbital tissue and from the suture points which united the tendon of the external rectus, but this ceased within the first week. The eyeball gradually receded within the orbit, and in two months scarcely a trace of the operation was left. There has been no return of the orbital trouble, but the child has had a rather severe osteitis in the right ankle joint, from which he eventually recovered.

**CASE XII. Myxosarcoma of the Orbit and Adjacent Cavities.**—A young woman, K. M., aged twenty-one, was brought to me on January 12, 1885. Three months before, she began to be troubled with epiphora in the left eye, and very shortly after she noticed a small tumor along the orbital margin just beneath the lower lid and at about its middle. It was painless and occasioned no annoyance. This has increased in size and now begins to push the lower lid forward. Careful examination proved that the tumor could be plainly felt in the orbital cavity, lying along the floor of the orbit beneath the eye and extending up slightly upon the inner wall. On being questioned, the patient stated that for more than a year she had suffered from a pain in the cheek just beneath the orbital margin, which was dull in character but never severe, and she had considered it neuralgia. The teeth were examined and several were found badly decayed, with large cavities. The nose and nasal meatus were examined, but nothing specially abnormal found. A diagnosis was made of tumor of the orbit, with the possibility of its origin in the maxillary antrum and subsequent perforation of the floor of the orbit. Both eyes were normal in every respect. The patient was advised to have the growth removed before the vision of the eye became affected, but declined all interference. In two weeks she came again and a great change in her appearance had occurred. The growth of the tumor had been very rapid. The eyeball was displaced upward and outward and vision was reduced to  $\frac{2}{3}$ . The lids were swollen and protruded perceptibly. The growth covered the entire floor of the orbit, extended over the inner wall and involved the orbital plate of the ethmoid, and had spread over the lower edge of the orbit and down upon the anterior surface of the superior maxilla. She was then eager for an operation, although she was told that in all probability the eye could not be saved. The nose and pharynx were again carefully examined, but nothing abnormal was found.

On January 80th I enucleated the eye and then found that nearly the whole orbit was filled with the growth. It varied in consistence, being in some places hard and in others soft. In examining the floor of the orbit, the probe passed into a cavity, showing that communication with the antrum existed. The orbit was thoroughly cleaned out in the usual way, and a large opening was then discovered in the floor of the orbit, which extended nearly to the orbital margin, and the growth could be seen and felt in the antrum. The extra-orbital portion of the growth was then removed from the surface of the upper jaw and was found closely united with the periosteum. The antrum was then emptied of its contents, and an examination showed that the growth had not apparently extended into the nose. The cavity of the antrum and the orbit was carefully washed out with bichloride solution (1 to 2,000), and the surface of the periosteum thoroughly scraped and cauterized. The patient recovered rapidly and went home at the end of two weeks. She was told that the tumor would almost certainly return, and that she must be seen at short intervals. I did not see or hear of her for nearly a year, and then she came with a return of the growth just beneath the lower margin of the orbit, on the superior maxilla. There was no sign of the recur-

rence of the tumor in the orbit, and the antrum was empty except for a considerable amount of thick, glairy mucus. The pain in the upper jaw had appeared at intervals, but did not last long. The external growth was removed through the lower *cul-de-sac*, the latter being incised throughout nearly its entire length, and the lid depressed. After the nodule had been dissected out, the bone was thoroughly scraped and then cauterized with the actual cautery. Considerable suppuration followed this operation, and the lid remained everted for several weeks, but eventually this defect entirely disappeared. I saw this patient at intervals for several months, but she then disappeared and I have heard nothing of her since. The growth in the orbit, on microscopic examination, proved to be of a mixed nature. The denser portion of the tumor was pure sarcoma of the small-cell variety. The softer portion, together with the growth in the antrum, was myxo-sarcomatous in character. It was impossible to decide, from an examination of the tumor and of the orbit and antrum, where the disease originated, though the combined evidence was rather in favor of the antrum.

CASE XIII. *Cyst of the Ethmoid Cells and Orbit*.—Early in March, 1885, a man, C. K., aged twenty-eight, came to me with a very incomplete and fragmentary history of trouble in the orbit on the left side. There had been a dull pain in the orbit and left side of the head for some months. It was constant but never severe. Lately there had been some failure of the vision and some prominence of the eyeball. He had had two decayed teeth removed, one from each jaw on the left side, but the pain continued. An examination showed a very slight prominence of the eyeball, with V. =  $\frac{2}{3}$ , clear media and a normal fundus. On the inner side of the left orbit, far back, a slight elastic prominence could be felt. The naso-pharynx was examined, but beyond a chronic catarrhal condition, with rather profuse secretion, nothing abnormal was discovered. The pain was now confined to the supra orbital region and the root of the nose. There seemed nothing to do but to watch the patient and await developments. One month later there seemed a slight increase in the elastic prominence on the nasal side of the orbit, and, a small trocar being introduced, a small quantity of yellowish, turbid fluid was evacuated. During the next day this continued to dribble through the wound and beneath the conjunctiva. That night the patient slept well, but toward morning he woke up with a feeling of a severe cold in his head. In endeavoring to clear his nose he made several violent expiratory efforts, and finally an immense mass of fluid and gelatinous discharge was passed through the nostrils, and he felt as if something had given way in his eye. He came to see me early in the morning. The discharge was still coming from the nose, and the ocular conjunctiva was swollen and distended all round the cornea, as in a case of extreme chemosis. The diagnosis was now somewhat easier. As a consequence of the chronic nasal catarrh, there had been an accumulation of fluid in the upper nasal meatus, ethmoid cells, and probably the frontal sinus. As a result of the pressure, either one of the fissures in the orbital plate of the ethmoid had been widened or the bone itself had been worn away, thus forming a communication with the orbit and the development of an apparent cyst in the orbit. This was punctured and the contents flowed out beneath the conjunctiva. The violent expiratory efforts had produced an enlargement of this opening in the ethmoid plate and an evacuation of a large quantity of fluid discharge into the orbital tissue, as well as through the nose. I punctured the conjunctiva in several places, and had the eye and conjunctival *cul-de-sac* irrigated every two hours with a sublimate solution (1 to 5,000), while the naso-pharynx was frequently washed out with a saturated solution of warm potassium chlorate. The patient recovered

without an adverse symptom, and vision was gradually restored to the normal standard.

CASE XIV. *Disease of the Maxillary Antrum, involving the Orbit*.—In the latter part of September, 1885, a gentleman, Mr. W., aged fifty-eight, came to me with the following complaint: In October, 1884, he began to have a dull pain in the right side of the face, near the external angle of the right eye and over the malar prominence, which lasted for some months. Thinking it might come from the teeth, he consulted his dentist, who extracted the third and fourth molars from the upper jaw on the right side, which were badly decayed. The fangs of the fourth molar had penetrated the antrum. For more than a month after the removal of the teeth there had been a slight offensive discharge into the mouth from the alveolar opening into the antrum, but this ceased and was followed by a more or less profuse purulent discharge through the right nostril and into the pharynx. The dull ache over the malar prominence still continued and was supplemented by pain in the region of the right frontal sinus. In June, 1885, the right eye was noticed to be on a higher level than the left eye and to be somewhat more prominent. He consulted an oculist in a neighboring city, who told him that there was a tumor in the orbit and that the eye must be removed. There was at this time no impairment of vision, but during the summer he began to have vertical diplopia. When I saw him there was a slight difference in elevation of the two eyes but no exophthalmia, and the right eye could be moved freely in all directions. Shortly after his first visit the purulent discharge from the nostril, which had been very slight for some months, became again profuse, and the right eye was restored to its normal position and the diplopia almost entirely disappeared. This induced me to believe that the trouble was entirely in the antrum and was of the nature of an abscess, and I urged an operation. To this the patient objected, as his condition was very comfortable and the frontal pain had subsided, and I did not see him again until March, 1886. At that time the discharge from the nose had nearly ceased, the right eye was displaced decidedly upward and somewhat outward, and was distinctly protruding from the orbit. The diplopia was more marked than ever, and the pain over the malar bone and frontal sinus was at times severe. The naso-pharynx showed little abnormal. Vision in the right eye was still perfect and the ophthalmoscope gave a negative result. Influenced by my experience with a former very similar though less severe case, which I had transferred to the care of a general surgeon who operated on the patient with excellent results, I urged an operation on the antrum through the mouth, and to this the patient consented.

The alveolar opening at the root of the fourth molar still existed, though closed by mucous membrane. This I enlarged with small bone forceps, first dissecting away the mucous membrane and gum. There followed at once the discharge of an immense amount of apparently healthy pus. The antrum was then irrigated with a warm saturated solution of boric acid, the irrigation being continued until the fluid returned clear. The cavity was then filled with a solution of sublimate (1 to 5,000) and the opening temporarily plugged. The nose and orbit were then carefully examined. Some of the fluid escaped through the nose. The floor of the orbit, which had been pushed upward, had receded, and proved to be excessively thin but apparently unperforated. The plug was then removed from the opening in the antrum, the sublimate solution allowed to run out, and the antrum again irrigated several times with the boric-acid solution.

The result was extremely satisfactory. There was no reaction, and the patient rapidly recovered. A thin semi-purulent discharge continued for about two weeks, but the cavity



was washed out twice daily, and at the end of the second month the patient was discharged cured.

CASE XV. *Small-cell Sarcoma of the Orbit and Adjacent Cavities*.—About the middle of May, 1886, a gentleman, C., aged thirty-two, consulted me in regard to one of his eyes. About six months before, he had noticed a small nodule at the inner canthus of the left eye, which at first looked like an enlargement of the caruncle. This slowly increased in size until it projected outside the canthus between the edges of the closed lids. While in Europe he consulted a surgeon, who removed the growth together with the caruncle. It returned within two months, and increased rapidly in size and occasioned great discomfort. When I saw him the growth involved the entire inner canthus, including the conjunctival folds, the ocular conjunctiva as far as the corneal margin throughout the nasal half, both *culs-de-sac*, and had extended deeply into the orbit along the inner wall, being apparently closely connected with the periosteum over the lacrymal and ethmoid bones. The inner ends of both lids were also infiltrated. The eye was limited in motility in all directions, except outward. The media were clear, the fundus was healthy, and vision was normal. I advised a very complete and radical operation—viz., the enucleation of the eye, the removal of the entire contents of the orbit, including the periosteum if necessary, and of the inner halves of both lids. To this the patient would not consent and went home, but subsequently submitted to an operation by a local surgeon, the exact nature of which I do not know, but it included the enucleation of the eye. The tumor again returned within two months and grew with great rapidity, so that less than four months after the second operation, when he again consulted me, the growth had filled the orbit, involving nearly the whole of both lids, the cheek, side of the nose, and temple. The left nostril was also occluded, though by what could not be ascertained definitely, but probably by a prolongation of the growth from above. Inasmuch as nearly all the deep bones of the face were involved, as well as the adjacent cavities, I declined to operate, but I removed a piece of the orbital growth for examination. The patient returned home and a fourth operation was done, but he died within two weeks of exhaustion. The microscopical examination of the portion of orbital growth removed by me proved it to be a small-cell sarcoma. I subsequently learned that the family history of the patient showed a distinctly cancerous tendency. His mother had been operated upon for cancer of the breast, and had subsequently died of the disease. A maternal aunt had died of cancer of the uterus, and so had his maternal grandmother.

CASE XVI. *Small-cell Sarcoma of the Arm and Orbit*.—In the latter part of December, 1887, a little boy, aged three, was brought to me, which proved to be a case of great interest. About fourteen months before, the child had received an injury to the left arm from a fall. The exact nature of this injury I could not ascertain, but it was not a fracture. From this injury there resulted a tumor, which involved the left upper arm from the elbow to the head of the humerus, and the glands in the axilla were infiltrated. Some time during the summer of 1887 the left arm was amputated at the shoulder joint and the enlarged glands were removed from the axilla. The mother said the tumor proved to be a cancer on examination with the microscope. Soon after the amputation of the arm the right eye was noticed to be more prominent than the left eye, and the upper lid drooped. When I first saw the child the exophthalmus was forward, downward, and outward, and the infiltration of the lid was marked. The evidence of the presence of an orbital tumor was unmistakable, and the parents were told of the probable malignancy of the growth and of its connection with the tumor in the arm. The presence of the same

trouble in the lid was inferred from its swollen, infiltrated condition, and the hard sensation it gave when compressed between the fingers. I advised that the orbit be emptied of its contents, including the eyeball, that the upper lid be removed, and that the orbit be closed up by a plastic operation. This advice was declined, and I heard nothing of the child until four weeks later, when the father informed me that the child was ill with pneumonia. Death followed on the third day, and I received permission to remove the contents of the orbit, including the eyeball. The tumor had grown very rapidly, and was closely adherent to the periosteum and to the sheath of the optic nerve, so that the eye and the tumor were removed together. The growth had also extended into the sphenoidal fissure and over on the cheek. It proved to be a small-cell sarcoma, very vascular, arising from the periosteum, and involving in its growth the sheath of the optic nerve, the intravaginal lymphatic space being filled with small round cells, similar to those in the main growth. None of the tissues of the eyeball itself were invaded by the growth. I was not permitted to make any further examination of the body.

CASE XVII. *Fibro-sarcoma of the Orbit*.—I was consulted in March, 1889, by a gentleman, J. W., aged forty, who told me that the vision of the right eye had been defective from early childhood, although it could be somewhat improved by glasses, which he sometimes wore. Three months before, vertical diplopia suddenly appeared, preceded by a severe pain in the left eye, and the double vision had persisted ever since. He thought also that the left eye was somewhat more prominent than it had been. For the last six weeks the upper lid on the left side had been swollen. When I saw him the left upper lid was swollen and seemed to be pushed downward. The left eye protruded forward, downward, and outward, but the motility was not greatly impaired, except upward. Media clear and fundus normal in both eyes. Diplopia upward and to the right for all large objects. R. E.,  $\frac{2}{3}$ ; with cyl. —D. 2.75, axis  $90^\circ = \frac{2}{3}$ . L. E.,  $\frac{2}{3}$ ; with cyl. —D. 0.50, axis  $90^\circ = \frac{2}{3}$ . Just beneath the superior orbital margin on the left side, near the inner angle of the orbit, and reaching nearly to the outer angle of the orbit, was an elastic, nodular mass, extending backward for some distance and apparently closely connected with the roof of the orbit. The naso pharynx was normal, as was also the orbit on the opposite side. The patient was told that he had an orbital tumor, and that, if an operation were done for its removal at once, the eye might be saved. He consented, and the operation was appointed for the next day.

The location of the tumor was such that it was necessary to displace the eyeball downward and outward as far as possible, and this was done without dividing any one of the ocular muscles. The conjunctiva was divided through the upper *cul-de-sac*, the incision extending the whole length of the superior orbital margin. The adhesions between the orbital tissue and eyeball, and between the latter and the tumor, were then carefully broken through with the finger and a strabismus hook, which was easily done, as none of the adhesions were firm. It was then found that the tumor involved nearly the entire roof of the orbit, and extended as far back as the finger could reach. It was flattened in the center by pressure on the eyeball, but was thicker on the temporal and nasal sides. It was very firmly attached to the periosteum of the roof, and its dissection was extremely tedious. Great care had to be exercised to avoid wounding the pulley of the superior oblique, and, at the apex of the orbit, to avoid injury to the optic nerve and superior oblique and superior rectus muscles. After its removal, as much of the periosteum of the roof as could be reached was stripped off and removed and the underlying bone scraped. The hole was then thoroughly irrigated with sublimate solution (1 to 2,000), the

wound in the *cul-de sac* carefully closed by a number of sutures, and the eye bandaged. There was scarcely any reaction, but the infiltration in the upper lid subsided very slowly. At the end of a week the eyes were tested for diplopia, and it was found that the superior oblique had been injured during the operation, the relation of the double images to each other being quite characteristic. This persisted for more than four months, but eventually nearly entirely disappeared. The eyeball resumed its normal position, but slowly. This patient still is under observation at somewhat long intervals, but there has been as yet no trace of a recurrence of the disease, a period of three years and a half since the operation. The tumor was very carefully examined, and proved to be a fibro-sarcoma, with a very large preponderance of dense fibrous tissue and but comparatively few cells, which were of the fusiform variety.

CASE XVIII. *Spindle cell Sarcoma of the Eyelid, Orbit, and Adjacent Cavities*.—Early in April, 1889, a man was sent to my office with the following history: He was twenty-three years of age, apparently in perfect health, with unusually fine muscular development. Five or six weeks before, he had first noticed a small lump in the lower lid of the left eye, near the inner canthus. It was at first movable and painless, but increased rapidly in size, became painful, and led him to seek advice. When I saw him the lower lid was swollen, reddened, and partially everted. The growth had extended downward and outward over the superior maxillary and malar bones, and backward into the orbit, along the floor and inner wall. It was irregularly nodulated, and the skin was freely movable over it. The left eye was limited in motility inward and downward. Both eyes were normal in every respect. The naso-pharynx was apparently healthy. It was impossible to determine by the examination whether the growth had begun in the orbit or in the eyelid. I gave an unfavorable prognosis, and told him that the only advice I could give him was to have an operation for the removal of the tumor done as speedily as possible, and that it would necessitate the loss of part of the eyelid and possibly of the eye itself. He agreed to do whatever I advised, and the operation was done on the second day following my examination.

The internal canthus was split by a horizontal incision extending to the bridge of the nose. The lower lid was then split into an anterior lamina of skin and orbicularis muscle, which seemed to be healthy, and a posterior lamina containing the tarsus, conjunctiva, and connective tissue, as in the old Art-Jaeschke operation for entropion. The incision was carried from the outer end of the first incision outward to the middle of the lid, and extended vertically downward to the level of the lower margin of the orbit. This was done because the skin of the lid seemed healthy. The ocular conjunctiva was then dissected free from the nasal half of the eyeball, being cut entirely across along the lower orbital margin and inner side of the orbit, and turned over on the cornea. It was then seen that to reach the extra-ocular portion of the growth the lower lid must be cut in half down to the orbital margin, which was done and the halves of the lid turned as far as possible out of the way. The growth was not very adherent to the underlying bone outside and was somewhat easily removed by the scissors and forceps. Inside the orbit it was more flattened out and adherent to the bone, especially along the floor of the orbit, and here the process of dissection was much more slow. It extended about two thirds of the way back into the orbit, was closely attached to the periosteum but not at all to the eyeball, which was readily pushed out of the way. After nearly an hour's work the tumor was apparently entirely removed, and a careful examination was then made of the floor and inner wall of the orbit, without discovering any remains of the growth. The bone was

then scraped and the cavity in the orbit washed out with a sublimate solution (1 to 5,000). The inner half of the lid, consisting of skin and muscular tissue, was then cut away and removed, and the vacancy filled by a flap of skin taken from the forehead and root of the nose, twisted on its base, and united with the inner end of the outer half of the lid by suture pins and the necessary sutures. There was considerable reaction on the next three days, but almost no suppuration, and the flap healed well, so that the patient was discharged from treatment in about five weeks with a very presentable lower lid. Nothing more was heard from the patient for a period of eight months, when he presented himself with an unmistakable return of the growth in the orbit and eyelid. A very radical operation, including the removal of the eyeball, was the only advice I could give him, and this he declined. Nearly a year later an operation was done in a distant city for the removal of the growth, which had attained enormous proportions. The nature of the operation was unknown to me, but it involved the removal of several large pieces of bone, probably the superior maxilla and ethmoid. He recovered from this operation, but died soon after from some cerebral complication, and an autopsy was not allowed.

The tumor removed by me at the first operation proved to be a sarcoma of the spindle-cell variety, with considerable fibrous tissue scattered throughout, and contained but very few blood-vessels.

CASE XIX. *Small-cell Sarcoma of the Orbit, Eyeball, and Adjacent Cavities*.—On October 4, 1889, a woman, aged thirty-five, was brought to me with the following history: For about a year she had suffered from severe neuralgia in the right side of the head and right orbit. She had had defective vision in both eyes for four or five years, but had never consulted any physician. Four days before I saw her she suddenly discovered that she was blind in the right eye.

An examination showed the following condition: The right eye protruded straight forward and its motility was limited in all directions. It resisted any attempt at replacing it in its normal position, and the pain produced by any such attempt resembled that present in orbital cellulitis and periostitis. The iris was dilated and immovable. The right eye was situated at least a quarter of an inch in advance of the left eye, but in the same horizontal plane. There was an apparent infiltration of the orbital cellular tissue, which was most marked along the floor of the orbit, and upward and outward just inside the superior orbital margin. There was a chain of enlarged glands on the right side, beginning at the pre-audicular gland and extending down along the border of the sterno-cleido-mastoid muscle to the level of the thyreo-cricoid region. The patient had had repeated epistaxis for some months, together with a profuse purulent discharge from the right nostril. An examination of the nose revealed a hypertrophied and displaced inferior turbinated bone, but no visible growth in the naso-pharynx. The patient complained of a constant pain over the malar and superior maxillary bones.

A diagnosis was made of a tumor in the nasal meatus, orbit, and maxillary antrum, with the strong probability of its origin in the antrum. Two weeks later the growth along the floor of the orbit appeared at the inner canthus, where it felt like a hard though slightly yielding mass, and I urged an immediate and radical operation. The right eye was entirely blind; the ophthalmoscope showed a neuro-retinitis or papillitis in the stage of atrophy. The family consented to an operation, which was done on October 19th.

So far as could be discovered, there was no external growth on the cheek. The eyeball was enucleated in the usual manner, and the posterior part of the sclera and sheath of the optic

nerve, was found to be surrounded and intimately connected with the growth in the orbit. On cutting through the optic nerve a mass of the tumor was cut through and came away with the eyeball. The floor of the orbit was found entirely absent, except a narrow rim of bone along the orbital margin, and the antrum was filled with the growth. The conjunctiva was then cut through at the *cus-de-sac*, and, with the entire contents of the orbit, was then removed. The inner wall, roof, and outer wall of the orbit seemed to be intact and the periosteum was smooth. There did not appear to be any extension of the growth into the optic foramen or sphenoidal fissure, and these facts seemed to emphasize the probability that the tumor originated in the antrum. The communication between the antrum and nasal meatus was found much enlarged. The growth was removed from the antrum, and the cavity thoroughly washed out with bichloride solution (1 to 5,000). Part of the inner wall of the antrum and part of the nasal process of the superior maxilla were then removed, and the growth was then taken out from the nasal meatus. Small pieces of the tumor and bits of the turbinated bones were removed in this way, until it was possible to syringe freely from the antrum into the nose and pharynx. A large amount of detritus was washed out in this way, until the lower and middle meatus were entirely free. A drainage-tube was then introduced through the nose and the orbit dressed in the usual way. The bony walls of the antrum seemed to be intact, except that which separated it from the orbit, and this was entirely gone. In view of this fact, I did not deem it wise to attempt the removal of the maxillary bone, as the patient was greatly prostrated by the long operation. I told her family that the tumor would probably return and in a comparatively brief space of time, but in this I was mistaken. The patient recovered rapidly from the effects of the operation. The orbit and antrum were irrigated twice daily for a period of three weeks, but there was not at any time much discharge, and it soon changed into a slight mucous secretion. At the end of two months the periosteum lining the antrum and orbit looked smooth and normal, and the patient could breathe through the right nostril. There was no positive evidence of a return of the growth till the November following, a period of thirteen months. It then appeared in the nose from above, extending downward into the nostril and also through the enlarged opening into the antrum. She began to complain of severe frontal headache, which probably pointed to an extension of the growth into the frontal sinus or ethmoid or both. I advised another operation, beginning in the nose, but did not urge it very strongly, as I regarded the case as hopeless from the first, and the patient herself did not wish it. I attended the case to the end. The growth gradually filled the antrum and orbit, extended into the ethmoid, broke through the orbital plate of the ethmoid into the orbit, and also filled the sphenoidal fissure. The growth in the nose was so extensive as to obliterate both nasal cavities, and for the last months of her life she breathed entirely through the mouth. She finally died from pure exhaustion without any head symptoms nearly two years, lacking a few days, after the operation. Her family would not allow an autopsy. The tumor on examination proved to be a small-cell sarcoma, very vascular, which had intimately involved the sclera and sheath of the optic nerve as well as all the orbital tissues.

#### CONCLUSIONS.

*Tumors of the Sphenoid.*—So long as a pathological process, whether it be inflammatory or a new growth, is limited to the sphenoidal antrum, the subjective symptoms are either entirely absent or there may be severe pain

in the head. If the process extends to the neighboring structures, symptoms arise which point to the probability that the sphenoid bone is the seat of the disease—such as blindness due to compression of one or both optic nerves, and the visible or tangible presence of the growth in the naso-pharynx, ethmoid, orbit, or skull. The entrance of the growth into the cranial cavity may occur without any subjective symptoms, or there may be severe headache. If the progress of the growth is very rapid, meningitis or cerebral abscess will result. The ophthalmoscopic symptoms are either papillitis or atrophy of the optic nerves, due to perineuritis and pressure of the swollen nerve sheath on the optic nerve-fibers. In some cases the pressure is exerted on the optic nerve in the optic canal. Tumors of the sphenoid antrum may perforate the middle fossa of the skull without causing blindness, and when blindness does occur in these cases, it is not necessarily due to pressure on the optic chiasm, for it may be unilateral. If an orbital tumor rapidly causes blindness, and the latter starts from the temporal side of the field and leaves the region of the macula lutea unaffected to the last, and if at the same time a growth appears in the naso-pharynx, it is probable that the tumor began in the sphenoid antrum.

*Tumors of the Ethmoid.*—A morbid growth confined within the ethmoid cells gives rise either to no symptoms at all or merely to headache, paroxysmal in character. The orbital symptoms are the same as those of tumor of the orbit. The motility of the eyeball is limited. The vision may be slightly affected, or there may be complete blindness. The visual field may not be involved. If the tumor has entered the naso-pharynx, the mouth is more or less open and the speech is nasal. Later there is loss of the sense of smell. There may be more or less continuous dropping of clear fluid from the nose even in solid tumors, owing to a communication between the upper wall or roof of the ethmoid cells and fissures at the base of the skull. There may also be orbital or palpebral emphysema and hæmorrhage from the nostrils.

*Tumors of the Superior Maxilla and Maxillary Antrum.*—Tumors of the maxillary antrum may cause pain in the teeth of the upper jaw, a dull pain in the region of the antrum, or in the region of distribution of the infra-orbital nerve, but not until they have attained considerable size and have more or less completely filled the antrum, the distention of the walls of the cavity causing the pain by pressure on the nerve-twigs. As the tumor grows, the walls of the antrum are gradually absorbed, and a new thin scale of bone is developed from the periosteum. This may occur in the anterior wall, or in the orbital wall, or in the alveolar wall, and the tumor soon extends toward the nose, and causes great enlargement of the hole communicating with the nasal meatus. These nasal growths extending from the antrum are often erroneously mistaken for nasal polypi. Subsequently the diagnosis is rendered easier, either by a projection forward of the anterior wall of the antrum, or by displacement of the eyeball upward and outward, or upward and inward, by the protrusion of the floor of the orbit. A large tumor of the antrum would probably increase the breadth of the cheek and would push the nose



toward the opposite side. If the tumor grows from the bone itself, the inferior orbital margin is decidedly broadened. Tumors from the antrum itself rather tend to break through into the nose, mouth, or orbit. They early involve the nasal meatus, thence extend into the sphenomaxillary and palatine fossæ and pharynx, and may finally perforate the base of the skull. They usually involve the orbit later, sometimes extending into it from the ethmoid cells, even before the floor of the orbit is perforated. In no case is it possible to diagnosticate a tumor of the maxillary antrum early in its development.

*Tumors of the Naso-pharynx.*—Tumors of the nasal and pterygo-palatine fossæ may enter the orbit through the infra-orbital fissure. They cause neuralgia of the infra-orbital or posterior alveolar nerves. The orbital portion of the tumor may divide into two branches, one involving the orbit and the other extending into the cranial cavity through the supra-orbital fissure. They eventually extend into all the neighboring cavities.

Finally, in the treatment of these growths, it is absolutely necessary that they should be completely extirpated early in their development, together with all the surrounding tissues, including the bony walls of the cavities involved. If a malignant growth has already invaded the deep bones of the face and base of the skull, including the cavities contained within them, the case may be regarded as hopeless, and while an operation may relieve the patient temporarily, it undoubtedly hastens the fatal termination.

## AN IMPROVED TECHNIQUE IN THE OPERATION OF EXTERNAL PERINEAL URETHROTOMY.

By WILLIAM F. FLUHRER, M.D.,

VISITING SURGEON TO BELLEVUE AND MOUNT SINAI HOSPITALS.

For some years I have practiced opening the urethra in the operation of external perineal urethrotomy in a way that seems to me to have advantages over the usual method of operation. Recently I have made further changes in procedure, which, upon trial in two difficult cases, were perfectly satisfactory.

If the operation is undertaken for urethral stricture, a whalebone guide is, if possible, introduced into the bladder. In one of my recent cases this was impossible, be-

The instrument is of the form shown in Fig. 1. It is nine inches and a half in extreme length, and straight to within an inch of its distal end, where it is slightly bent at an angle. It is tunneled, the bridge at the end being an eighth of an



Fig. 3.

inch long. It is finished with extreme care in the workmanship, and is so constructed that the triangular blade mounted upon the stylet can be made to cut quite near the distal end of the slender staff. This tunneled straight Maisonneuve is passed over the guide down to the perineal obstruction and intervening tight strictures are incised. A grooved tunneled staff, No. 19 F. (Fig. 2), short in length of curve, is passed down to the perineal obstruction over the guide, of course, when that aid can be used. Now, in

place of holding the staff in the usual position, its distal end is, by an appropriate manœuvre, directed to the surface of the perinæum; or the staff may be directly passed to this position, beginning its introduction from between the thighs. The handle of the staff is then intrusted to an assistant, who so holds the

instrument as to make its distal end prominent in the perinæum, and who always carefully maintains it at the same depth in the urethra. The operator then grasps the prominent end of the staff through the perineal tissues with the thumb and forefinger of the left hand,

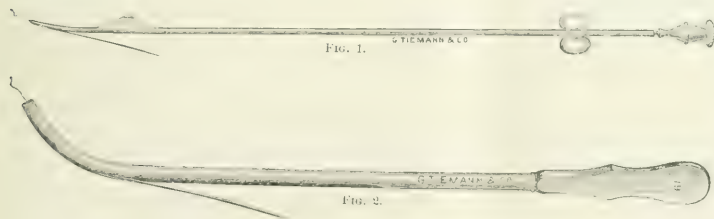


FIG. 1.

FIG. 2.

cause the urethra, just behind the scrotum, was obliterated for three quarters of an inch. If tight strictures anteriorly interfere with the introduction of the staff to be used, the path is opened by a Maisonneuve urethrotome, of a pattern made for me years ago by Tiemann & Co. for this purpose.

the inner edge of the hand being directed upward and retracting the scrotum (Fig. 3). By this procedure the operator himself, instead of the assistant, controls lateral displacement of the end of the staff, and at the same time makes tense the tissues in the line of incision. As the operator deepens his incision, the thumb and forefinger retract the tissues and thus control the hæmorrhage, at the

that purpose by means of additional retracting loops of silk.

In case the stricture is pervious and yet the operator is foiled in his efforts to introduce a guide, he should open the urethra as described, and search upon the anterior face of the stricture for the opening with a whalebone guide or Gouley's fine probe-pointed grooved director, and, having found the path to the bladder, proceed as advised above.

In case the urethra is impervious, it is opened at the anterior face of the obstruction, and if there is a sufficiently clear space of perineum behind, as in one of my



FIG. 4.

same time making more definite the grasp upon the end of the staff. The end of the staff is exposed at first by a very small cut into the urethra, so that the staff shall not protrude through the opening, but continue to push the urethral wall before it. The left hand being kept at service in the position described, the operator now passes the silken-thread retractors through the cut walls of the urethra. The point of the curved hæmostatic needle, entering from without, is passed inward, strikes the surface of the staff, along which it glides, and emerges through the little opening in the urethra. This is done first on one side, then on the other. The opening into the urethra is then enlarged and the

last cases, the urethra is identified by the touch and opened behind the obstruction. The obliterated portion between the exposed two healthy portions of the urethra is then cleanly incised. If, however, there is no clear healthy space of perineum in which the urethra can be felt, then the operator should proceed in the usual approved manner, and, with the forefinger of the left hand in the rectum upon the urethra at the apex of the prostate, with a sure hand and keen knife cut through the obstruction from before backward into the clear urethra.

The last case upon which I operated was a very tight stricture at the bulbo-membranous junction. Some difficulty was encountered in passing a guide, which was tightly grasped by the stricture, yet, upon the above-described technique, the steps of the operation were so simple and precise that I am confident the whole operation, except the ligation of an artery, could have been performed blindfolded and by the touch alone.

In case there is no obstruction, the perineal urethra can be opened upon this method with ease, speed, and precision, and with lessened risk of wounding the bulb.

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penile portion of the guide is withdrawn from the staff through the perineal opening. Into the hole in the end of the staff is then fitted the little detachable retractor (Fig. 4, a). This is adjusted by holding the retracting hook downward while the end is fitted into the staff; then, by a half turn, the retractor is brought upward into position, where it is firmly held by friction.\* The grooved staff is thus converted into a long-handled retractor, by means of which the assistant commands the upper angle of the perineal wound, and restrains the hæmorrhage from that spot without getting in the way in the operative field.

The operator next threads the free portion of the guide through the tunneled Maisonneuve, and passes the latter instrument into the bladder, its arrival there being announced by the exit of urine. The stricture is then cut upon the floor of the urethra and the blade withdrawn. Along the Maisonneuve staff as a guide is then passed into the bladder the probe-pointed grooved catheter shown in Fig. 5. The floor of the urethra is adequately incised by a straight bistoury, guided by this director; or, better still, I think this further division of the stricture is made partly in the lower and partly in the upper wall of the urethra, the cut edges of that organ being sufficiently retracted for

\* The retractor might be fastened in place by a bayonet catch.

**The Death of Dr. Samuel Logan, of New Orleans,** occurred by apoplexy on the 13th inst. He was a veteran teacher, surgeon, and editor in the South. He was a native of South Carolina, born in Colleton District in 1831. Before he had practiced in Charleston and Richmond, in both of which cities he identified himself with anatomical instruction in the medical colleges. During the war he held commissions in the Confederate service as medical director and inspector. In 1866 he took up his residence in New Orleans, and very soon thereafter became professor of surgery in the school of medicine. He was one of the compilers of the *System of Surgery* of Dr. Eli Geddings, a favorite text-book at the Southern schools for many years. In 1872 he became professor of anatomy and clinical surgery in the University of Louisiana, and about the same year a member of the editorial staff of the *New Orleans Journal of Medicine*.

**A Testimonial Banquet to Health Officer Jenkins.**—The many friends of Dr. W. T. Jenkins, the health officer of the port of New York, propose to tender him a public reception and banquet on Saturday evening, February 11th, in recognition of "the very great and efficient services that he rendered during the past year in saving this country from cholera." The reception will be public, and tickets for the banquet may be obtained from General Ferdinand P. Earle, Hotel Normandie.

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THE NAVY AS A NATIONAL QUARANTINE AGENCY.

In a recent issue of the *New York Times* it is editorially stated that the performance of national quarantine service by the navy would be very desirable, the medical officers of the navy being accustomed to sea service! This is an amusing proposition, as the Bureau of Medicine and Surgery has been unable to fill the vacancies that have existed in the medical corps since the termination of the civil war, and has barely sufficient officers to attend to the legitimate duties of that bureau.

Unfortunately, Congress has seen fit to ignore the repeated recommendation of the surgeon-generals of the navy to enact legislation that would give to the corps a similar status to that now held by the medical corps of the army. And those familiar with the experience that many medical officers of the navy have had with line officers who temporarily commanded them do not wonder that the naval medical service is the least attractive of all the Government medical services.

While the army and the Marine-Hospital Service find it possible to obtain all the officers they need, the young physician holds aloof from the questionable attraction of a commission in a corps in which he is looked upon as the inferior of a lot of callow youths fresh from their final examination at Annapolis.

We furthermore believe that the surgeon-general of the navy would take the position that the surgeon-general of the army took some years ago, when a similar proposition was made relative to the employment of medical officers of the army on quarantine duty. He informed Congress that it would be impossible to furnish medical officers of the army for quarantine duty "without serious interference with their military duties and detriment to the interests of the service."

THE "CHOLERA" SCARE AT LITTLE ROCK.

OUR readers probably recall the press dispatches published two or three weeks ago to the effect that an apparently epidemic disease with choleraic symptoms had appeared among the convicts of the Arkansas penitentiary. At first the disease was supposed to be due to poisoning, but subsequently it was imagined to be Asiatic cholera. A request was made that Surgeon-General Wyman should detail an officer to investigate the matter, and Passed Assistant Surgeon Henry D. Geddings was at once ordered to do this. His report is published in *extenso* in the *Abstract of Sanitary Reports* for January 13th.

Surgeon Geddings states that a picked body of a hundred

convicts had been sent from the penitentiary to a camp at Helena, where they were engaged in work upon a railroad near the levee on the banks of the Mississippi River. The food was of the coarsest, commonest description, and the water for drinking and cooking was drawn from a stream that received in part the sewage of Helena and was further contaminated by two slaughter-houses.

Shortly after the convicts' arrival a violent outbreak of disease occurred among them. They were quartered in five cars. Six of them died, and it was determined to return the rest to the penitentiary. One man died *en route* and one shortly after the arrival at that institution. In all, eighteen of these men died and also three other convicts that had not been outside the walls. This latter fact justified some concern until we read that two of the three had been ill for some time, while the third had eaten some decaying pickled beets found on a pile of decomposing refuse. In a very gentle manner Dr. Geddings informs us of the wretched sanitary condition of the penitentiary itself and of its immediate environment.

Dr. Geddings made a bacteriological test that failed to show the existence of the cholera spirillum, and justly concludes that the outbreak was due to products of animal and vegetable decomposition conveyed into the drinking-water supply at Helena.

Passed Assistant Surgeon L. L. Williams was detailed to inspect the camp at Helena, and his report is condemnatory of that establishment regarding all its sanitary features. The cars had not been out of the State for some months.

It is not unnatural that there should be a disposition to ascribe such seeming local epidemics to cholera infection, and Surgeon-General Wyman is to be complimented on the effective manner in which he disposed of the rumor in this instance.

THE "SCOTCH DOUCHE" IN CHRONIC ARTICULAR RHEUMATISM.

DR. M. SCHÜLLER, of Berlin, has written in the *Archiv für klinische Chirurgie* concerning chronic joint trouble of rheumatic origin. He has had better results from the use of the "Scotch douche" than from the other forms of hydrotherapeutic application in this difficult class of cases.

The Scotch douche consists in the quick alternation of streams of hot and cold water, in a stream of about the size of the little finger and of a constantly varying pressure, delivered from the same nozzle. This douche is not so well known, says Dr. Schüller, as it should be, and is not found in a number of bathing resorts visited by him. Its good effects are shown by a restoration of the thickened joint capsule, and by a strengthening of the muscular apparatus. The douche should always be used after the warm baths, which are often administered of too high a temperature at the bath establishments.

The Scotch douche has other advantages in the facts that it can be regulated very easily as to temperature, that it can be borne by weak patients, and, above all, that it conveys a distinct mechanical effect, along with its thermal effect, upon the



vessels and muscles. This treatment is ordinarily soon followed by a diminution of pain and an increased motility of the joint. Many cases can be kept for years in an endurable condition by this means which would otherwise be attended by great suffering. In cases that are marked by a relative immobility due to a shrinking and contraction of the capsule, but not due to true ankylosis, the Scotch douche, with an especially delicate massage and passive motion, will assist materially in the increase of mobility. The author has particularly observed this among those of his patients who have been affected in the wrist and ankle joints. The great susceptibility to pain which attends these cases will not permit of the most delicately applied massage, if the latter is tried without the douche; but with the combination these patients feel better, walk or move the limbs with less difficulty, and experience much less pain so long as the treatment is continued.

#### PUBIC SYMPHYSEOTOMY.

THE first Canadian case of this operation, which is the fourth American, is reported in the *Montreal Medical Journal* for January as having been performed in that city on December 5th. The surgeon was Dr. J. A. Sprengle. The subject of the operation was a primipara of Irish parentage. Both mother and child have done well. The indications for the operation were found in a pelvic contraction, as regarded the mother, and in the large head of the infant. Dilatation of the cervix uteri was complete on the 4th, the day before delivery, with no descent of the head. The forceps, under anæsthetics, failed to bring relief. The "crying of the child *in utero*" is said to have been "distinctly heard by those present." The surgeon, having the assistance of Dr. Lockhart and Dr. Kenneth Cameron, decided to sever the symphysis. Special care was taken to keep the urethra away from the path of the incision, and no complications were encountered. When the symphysis was cut through the two sides sprang apart, leaving an interval of about an inch. Lateral support was given to the pelvis, the forceps was again applied, and delivery was rapidly accomplished by Dr. Lockhart. The infant was in good condition and not disfigured by the instrument.

All the operations thus far reported as having been done in America have been successful in saving the mother, and three of the infants have been born alive. The fourth child might have been saved, it is believed, if the operation had been performed a few hours earlier. It is reported that a symphyseotomy performed at the Rotunda Lying-in Hospital in Dublin, on November 22d, resulted successfully as to both mother and child. The operation had not before been done there since 1782.

#### MINOR PARAGRAPHS.

##### THE PROPOSED PENNSYLVANIA MEDICAL PRACTICE ACT.

We have received a copy of a bill prepared by the Medical Society of the State of Pennsylvania, which the society's legislative committee is making a strong effort to have passed this

year. We regret that we have not space for at least a summary of its provisions in this issue of the *Journal*. From our reading of it, we believe it of the first importance to overcome any antagonism that may proceed from low-grade schools, which fear that a mixed board containing sectarian physicians will be dangerous. The committee justly holds that the only practicable test of a physician's qualifications is his knowledge of the science of medicine. The bill leaves out of its requirements examinations in the practice of medicine and in therapeutics, because it is thought that these two disputed branches should not be touched upon. It is felt that a physician who can pass an examination before an unprejudiced board in the other branches of medicine stated is a safe practitioner so far as the State is concerned. A candidate's special belief in therapeutics or in the doctrine of medicine is no more to be interfered with than his religion or his politics.

#### A LUMINOUS FUNGUS.

THE *Union médicale* for December 27, 1892, gives a short account, from the *Revue scientifique*, of the *Pleurotus lux*, a fungus that takes its specific name from its property of glowing in the dark, even for twenty-four hours after it has been plucked. It has lately been carried to Europe from Tahiti, where the women use it as an adornment in bouquets of flowers.

#### THE ONTARIO MEDICAL JOURNAL.

THE fifth number of this new journal, for December, 1892, gives tangible evidence that it has a decided *raison d'être*. We congratulate the editors, Dr. R. B. Orr and Dr. W. H. B. Aikins, on the value of the matter contained in the *Journal* and on the attractive form in which it appears.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 17, 1893:

DISEASES.	Week ending Jan. 10.		Week ending Jan. 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	56	16	19	18
Typhoid fever.....	17	5	8	4
Scarlet fever.....	113	9	138	18
Cerebro-spinal meningitis....	4	1	2	1
Measles.....	117	8	87	13
Diphtheria.....	154	42	113	42
Small-pox.....	1	1	5	0

**The Alumni Association of Bellevue Hospital Medical College.**—The annual meeting will be held in room A of the Hoffman House on Saturday evening, January 21st, at 8 o'clock.

**The Society of the Alumni of Bellevue Hospital** will hold its annual dinner at the Hotel Brunswick on Wednesday evening, February 1st.

**The New York State Medical Association.**—The ninth annual meeting of the Fifth District Branch will be held in Brooklyn on Tuesday, May 23, 1893. All fellows desiring to read papers will please notify the secretary, Dr. E. H. Squibb, P. O. Box 760, Brooklyn.

**The New York Lying-in Asylum.**—Donations and subscriptions are solicited for this institution, formerly at No. 85 Marion Street, now at No. 139 Second Avenue, where reputable married women only are cared for gratuitously. The asylum, now in its seventieth year, has twenty-six free beds, and its patients are of all nationalities and creeds.

**The Brooklyn Surgical Society.**—The paper announced for the last meeting, on Thursday evening, the 19th inst., was On the Relation of Food to Hemophilia and Purpura Hamorrhagica, by Dr. Wunderlich.

**Jefferson Medical College, of Philadelphia.**—Dr. G. E. de Schweinitz has been elected clinical professor of ophthalmology. He had formerly held a lectureship on medical ophthalmology in the University of Pennsylvania, also a professorship in the Philadelphia Polyclinic.

**The City Charity Hospital.**—Dr. W. C. Jarvis has been appointed consulting physician and laryngologist.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 8 to January 14, 1893:*

**DUNLOP, SAMUEL R.,** First Lieutenant and Assistant Surgeon. The leave of absence granted is still further extended to include January 31, 1893.

**DUNLOP, SAMUEL R.,** First Lieutenant and Assistant Surgeon. His resignation has been accepted, to take effect January 31, 1893.

**O'REILLY, ROBERT M.,** Major and Surgeon. The order directing him to proceed to Washington, D. C., and report for duty as attending surgeon, is suspended until further orders.

**GREENLEAF, CHARLES R.,** Lieutenant-Colonel and Deputy Surgeon-General, is detailed as a delegate to the Eleventh International Medical Congress, to convene at Rome, Italy, on the 24th of September, 1893, and will at the proper time proceed to the place designated. While abroad in pursuance of this order, he will visit such points in Great Britain, France, Germany, Russia, Austria, Italy, and elsewhere, as may be deemed necessary by the Surgeon-General of the Army, on official business; and on completion of the duty contemplated will return to his station.

**GLENNAN, J. D.,** First Lieutenant and Assistant Surgeon, having reported at Headquarters Department of Texas, will proceed to Carrizo, Texas, and report to the commanding officer of the Seventh Cavalry squadron at that place for duty.

**POWELL, J. L.,** Captain and Assistant Surgeon, is hereby granted leave of absence for one month, with permission to apply for an extension of one month.

**TEN EYCK, B. L.,** First Lieutenant and Assistant Surgeon, having reported for duty at Headquarters Department of Texas, will proceed to Laredo, Texas, for service in the field, to relieve DAVIS, W. B., Captain and Assistant Surgeon, who, upon being thus relieved, will return to his station, Fort Sam Houston, Texas.

**KEEFER, FRANK R.,** First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and will report in person to the commanding officer, Fort Stanton, New Mexico, for duty at that post, relieving BANISTER, JOHN M., Captain and Assistant Surgeon. Captain Banister, upon being relieved by Lieutenant Keefe, will report in person to the commanding officer, Fort Leavenworth, Kansas, for duty at that post.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 14, 1893:*

**HESSLER, F. A.,** Passed Assistant Surgeon. Ordered to Receiving-ship Vermont.

#### Society Meetings for the Coming Week:

**MONDAY, January 23d:** Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

**TUESDAY, January 24th:** New York Otological Society (private); New York Dermatological Society (private); Buffalo Obstetrical Society; Medical Society of the County of Putnam (semi-annual), N. Y.

**WEDNESDAY, January 25th:** New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Auburn, N. Y., City Medical Association; Philadelphia County Medical Society; Middlesex, Mass., North District and Berkshire, Mass. (Pittsfield), Medical Societies (Lowell); Gloucester, N. J., County Medical Society (quarterly).

**THURSDAY, January 26th:** New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopedic Society;

Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

**FRIDAY, January 27th:** Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

**SATURDAY, January 28th:** New York Medical and Surgical Society (private—annual).

## Proceedings of Societies.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Fourteenth Annual Congress, held at Boston on Monday, Tuesday, and Wednesday, June 20, 21, and 22, 1892.*

The President, Dr. S. W. LANGMAID, of Boston, in the Chair.

(Continued from vol. 6, page 748.)

**A Case of Tumor of the Larynx.**—Dr. H. L. SWAIN, of New Haven, read a paper with this title. (To be published.)

Dr. C. C. RICE: In the removal of very small laryngeal growths I have found the laryngeal loop guillotine easier to apply than any variety of forceps. It can be used in any part of the larynx. It is not large enough, however, for growths of the size removed by Dr. Swain. (The speaker referred to a case of laryngeal growth in which marked constitutional effects had followed the use of a four-per-cent. solution of cocaine.)

Dr. T. A. DE BLOIS: I think Dr. Swain has done well in calling attention to the small amount of hemorrhage which takes place on removal of these growths. Whatever may be the reason, whether natural contractility of the vessels or something else, it is true that the removal of laryngeal growths is seldom followed by the loss of more than a few teaspoonfuls of blood. In other parts of the air passages we meet with considerable hemorrhage.

The President: I am reminded by Dr. Rice's uncomfortable experience with cocaine to say something which I forgot to say in connection with another paper. Having seen nicotine recommended in a foreign journal for operations upon the larynx, I was induced to try this narcotic in one case during the past winter. I procured a ten-per-cent. solution, and diluted that at least one quarter, yet the effect was alarming, and I feel it my duty to warn the members of the association not to try it without the greatest precaution. It was as severe a case of nicotine poisoning as I could imagine short of death. Yet the drug was most carefully used, being applied on a cotton swab well wrung out, so that no dropping could have taken place. One tonsil was rubbed with it, and in a very few moments the patient had alarming syncope.

**The Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air Passages.**—Dr. C. C. RICE, of New York, read a paper on this subject. (See page 71.)

Dr. H. L. SWAIN: One very important point raised by Dr. Rice is the fact that patients should be taught to do something for themselves after the operator has had his say, and that which is required of them should, if possible, be easy to carry out. The spray behind the palate is of service in fifty cases to every five in which it is of value employed in the anterior nares. Yet it is very hard for some persons to become proficient in spraying posteriorly. I have put myself on record in one place, at least, as favoring a method of gargling. While not comparing it with sprays and the like, I wish to call attention again to the fact that it is possible for children and adults

to learn to gargle in such a way as to protect the duil against the posterior nares and into the nasal passages themselves. It requires no apparatus, and is comfortable to the patient when he acquires the practice. It is a most useful method for home treatment.

Dr. F. H. BOSWORTH: I can not let Dr. Rice's paper pass without saying that I do not think it represents the sentiment of the members of this association. I had supposed we were done with sprays. I do not believe they accomplish any practical good. I have recently removed the air-pump and spray apparatus from my office, and I believe that I have done better work since then than when I placed much dependence upon them. I am not a believer in the value of vegetable or mineral astringents as correcting morbid processes in the nasal passages. Furthermore, I do not believe we have to do with a disease in this region where an astringent is indicated. There is no such disease as catarrh, and supersecretion is a condition which we seldom have to meet. I am disposed to say that in a vast majority of cases deficient secretion exists. I except from this statement naso-pharyngitis, and really know but little about naso-pharyngitis. Mackenzie said in his address three or four years ago that there was a region which afforded our most interesting field for study. We do not know even the sources of naso-pharyngeal secretion. We only carry out cleansing indications. We have to cleanse the pharynx; but the best method of doing that is not by the spray. Directed behind the palate, it will not reach the parts, and the great proportion of patients will not tolerate it.

Notwithstanding the assertion that the post-nasal douche is injurious, I unhesitatingly place it in the hands of my patients and teach them to use it. In the so-called post-nasal catarrh, which is a most obstinate affection and which occurs between thirty and fifty years of age, we can accomplish the best results by training our patients to use the post-nasal syringe two or three times a day for the purpose of cleanliness.

I have risen simply to enter a mild protest against placing much dependence upon the use of sprays. Astringents are not often indicated. Stimulants are indicated in hypertrophic rhinitis, but we do not cure these cases; the patients cure them for us. Oily solutions we use as adjuvants, but I do not believe they correct any morbid condition which we meet with in the post-nasal cavities. The petroleum oils are undoubtedly soothing and grateful applications if more active treatment is carried out for the diseased condition, and they may act as excellent vehicles under some circumstances. As to cocaine, it is not an astringent; it does not constrict the secreting apparatus. Its effect is upon the blood-vessels. As a therapeutic agent I doubt its efficacy. I was very enthusiastic about it at one time, but I have abandoned it. It simply produces a temporary effect of which we avail ourselves, and it is of immense value to us as a local anesthetic. Without it we could not practice our specialty with any great degree of success. It also is of great value in hay-fever, but aside from that disease I doubt whether it possesses any therapeutic value upon the mucous membrane.

Dr. J. WRIGHT: Having written a paper upon the same subject a few months ago, naturally I was very much interested in Dr. Rice's. I agree with Dr. Bosworth that the dirtiest place in the naso-pharyngeal tract is in the vault of the pharynx, and that there is the place for carrying out the cleansing process, whatever it may be. But it has not been my experience that in the majority of cases, nor even in more than a small proportion of cases, one can educate the patient up to the point of spraying a watery solution into his own naso-pharynx. It has been my custom to use the post-nasal syringe almost altogether. In operations upon the nose the spray may

be used for antiseptic purposes and for cleanliness. There is, I think, a mistaken idea with regard to oily solutions in any form being suitable antiseptic vehicles. I do not believe they have the slightest antibacterial effect. The moisture of each bacterium protects it from the oil. Oily solutions have been shown time and again to have very little antiseptic effect *per se*.

I was also interested in Dr. Swain's remarks upon the nasal gargle. Having read his paper describing the method, I tried it long and patiently, but never succeeded in getting a drop of the fluid into my nose, nor have I known any of my patients to succeed without choking and much discomfort.

Dr. MORRIS J. ASCH: It seems to me a medium course is the one to be taken. We should neither depend upon sprays altogether nor abolish them, as Dr. Bosworth seems to have done. I have long since given up sprays as a curative agent, whether in watery or oily solution, but I think they are immensely valuable as palliative and cleansing means. I could scarcely get along without them for these purposes. While one may be able to cleanse the nose with absorbent cotton, yet I have found nothing so valuable in the naso-pharynx as the spray. I never fail to cleanse the vault of the pharynx and get rid of the crusty secretion which may be there by means of the alkaline spray. In catarrhal cases I think astringents in spray are very valuable. In the beginning of a catarrhal laryngitis a spray of about half a drachm of neutral solution of perchloride of iron to the ounce of water will relieve the dryness and discomfort at once and the voice will be restored; the patient will come back next day of his own accord to have it repeated, and in a few days the trouble will have passed away. I would, then, protest against abolishing the spray entirely, and equally against depending upon it solely as a curative. I agree with Dr. Bosworth that the douche is a very valuable cleansing agent, but I think there can be no question that there is danger connected with it. If one depends upon it he will in time meet with some accident. Accidents do occur and patients never forgive.

Dr. MACKENZIE: While it must be confessed that there is a rivulet of common sense in what Dr. Bosworth has said, still it meanders through a pretty big meadow of incautious observation. I should be sorry to see views such as he entertains go unchallenged by members of this body. Doubtless the curative value of the spray has been grossly overrated, but this is not sufficient reason to banish this useful method of topical application from our armamentarium.

I would caution against the use of too much oily material, especially in the nasal passages, and Dr. Rice made a center shot when he said that the temperament of the patient should determine to a great extent the character of the spray to be employed. There are a great many patients, especially ladies, who object to the oily medicaments on the ground that they are disagreeable. This is, of course, of minor importance. The chief objection to their prolonged use is that they tend to beget a condition of dryness difficult to eradicate.

The injudicious use of cocaine in the nose and larynx is greatly to be deprecated. I have seen quite alarming cases of poisoning from this drug, even when used in very weak solution. Regarding the method of gargling referred to by Dr. Swain, I am at one with Dr. Wright. It is an unphysiological act and is a roundabout way of accomplishing a great deal of possible harm at considerable personal inconvenience.

I very rarely recommend the post-nasal syringe, and know of cases in which acute otitis media has resulted from its use.

Dr. SWAIN: It is possible to breathe through the nose with the mouth open, and that being so, it is also possible to cause a gargle to enter the nose. I am prepared at any time to give a personal demonstration of the practicability of the method. The majority of my patients who try it succeed.



DR. D. B. DELAVAN: Dr. Rice, I think, has done well to bring up this subject, and I am very glad that there are at least a few here who are ready to champion most of the ideas he has pre-ented. I think it would be a mis-representation of facts if the belief were to go abroad that this society had entirely done away with the use of the spray apparatus; that the nasal saw had swept it from the field, and that nasal surgery had totally taken the place of all therapeutic treatment of the nose. Practically the statement made by Dr. Bosworth, that he had recently caused his spray apparatus to be entirely removed from his office, amounts to that. For one I am happy to say that I still have faith in the treatment of certain morbid conditions of the nose and throat by therapeutic means, and that I still find use for the spray; and I believe there are few here who, while fully prepared to resort to surgical means where necessary, have not a spray apparatus in their offices which is called into more or less constant requisition.

With regard to the vaseline products, I think we sometimes forget their limitations. Vaseline and its products stand at one end of a list of which lanolin stands at the other. Lanolin is the most readily absorbed of the available fatty substances, and for that reason apothecaries use it with preparations to be rubbed into the surface of the body and I do not use vaseline. Vaseline therapeutically, therefore, is merely a mechanical agent. It prevents drying of the mucous membrane, but beyond that it has comparatively little function. I believe the majority of the advantages arising from its use are due to this mechanical action. It is a notably bad solvent with most substances, excepting the oils, and particularly in the case of iodoform.

Regarding the heating of sprays, if the temperature of the solution in the spray tube be raised up to a certain point and then the atomized spray driven against the bulb of a thermometer, it will be found that the actual temperature of the spray is considerably below that of the solution. In other words, the process of atomization lowers the temperature.

I am very glad there are at least some in this association who still have some use for the spray, and believe that if a vote could be taken ninety-five per cent. of our members would refuse to cast it aside.

DR. J. WRIGHT: I wish to supplement my remarks by adding that, like Dr. Bosworth, I have seen no bad results from the use of the post-nasal syringe. I have never seen water enter the Eustachian tube and so set up trouble. But one precaution should be observed—namely, tell the patient not to blow the nose while compressing the ala, for in doing so one can produce a certain amount of pressure in the naso-pharynx and drive an excess of fluid into the Eustachian tube. At the same time, although using it at my clinic for three or four years, I have never been able to trace any middle-ear trouble to it. I do not mean by that statement that it never does occur.

DR. BOSWORTH: I hope that I may not be misunderstood. I tell my patients to clean out their noses, and the best way for them to do it is by means of the spray. But what I do say is that the spray does not reduce hyperæmia; it does not relieve hypertrophy; it does not cure catarrh, whatever that may be. I say there is no such disease as catarrh. It does not mean anything to us. I go further and say that most so-called catarrhal processes in the nose are attended by deficient secretion. The nose secretes in twenty-four hours sixteen to eighteen ounces of serum and mucus. Take away half of the water by a hypertrophic rhinitis and the thicker part will remain, give rise to trouble, and lead to apparent excess of secretion.

DR. ASCH: Inquired of Dr. Bosworth whether in the condition in which the patient wet five or six handkerchiefs a day there was supersecretion or deficient secretion.

DR. BOSWORTH: If hay fever is meant, there may be super-

secretion, but this consists largely of a serous exosmosis, the source of which is in the venous sinuses, and not of a mucous secretion. I do not believe the Schneiderian membrane is often met with in a condition in which there is supersecretion.

DR. MACKENZIE inquired of Dr. Bosworth whether there were not glands in the Schneiderian membrane.

DR. BOSWORTH replied: Comparatively few, if muciparous glands are referred to.

DR. RICE: What more can be said? My paper was intended to advocate both the use of sprays and the necessity of consecutive operations in the treatment of nasal and naso-pharyngeal diseases. It will be an unfortunate day when all sprays are laid aside as useless. The objections of Dr. Bosworth have been, in my opinion, most admirably answered by Dr. Mackenzie, Dr. Delavan, and others, and I am quite willing to leave the verdict as to the value of the spray to this association.

(To be continued.)

## Book Notices.

*Medical and Surgical Electricity in Diseases of Women and Obstetrics.* By FRANKLIN H. MARTIN, M. D., etc. Chicago: W. T. Keener, 1892. Pp. xiv-252.

Among the enthusiastic followers of Apostoli there is no one who has written more temperately and rationally than Dr. Martin. In his professional work he has been fortunate in at least two respects—in having a mind without extreme bias in favor of preconceived theories, and in being surrounded by influences that would tend to check exclusiveness or narrowness. He has allowed his experience to mature before presenting it in book form, and therefore has fewer retractions to make than most writers of the past few years. We confess that we are somewhat disappointed in this book. Half of it is occupied with electro-physics, and the other half with the application of electricity in obstetrics and gynecology. Now, we do not mean to say that the subject of electro-physics is either uninteresting or unimportant, and we agree entirely with the author that no man has any business to use electricity as a therapeutic agent until he understands its fundamental principles; but in a work devoted to obstetrics and gynecology we naturally expect that those subjects will receive the chief consideration, while other matters will be given attention only in so far as they bear directly upon the main question. Much of the detail concerning magnetism, static electricity, dynamos, and other electrical apparatus has no direct bearing upon that portion of the book that is devoted to the main issue.

In the consideration of the treatment of fibroid tumors the author is cautious, reporting a number of cases cured, or *symptomatically cured*, and a number in which failure resulted. *Symptomatically cured*—what does that mean? Simply that there is relief for the time being; but with the tumor still present, the *fons et origo mali*, what assurance is there that the symptoms will not come back again, like the evil spirit in the parable? The comparison between electrical treatment and hysterectomy as it is now most favorably practiced, we mean with the Trendelenburg posture and the complete removal of the organ, is not what it was five years ago. We are not convinced that galvano-puncture is the harmless measure it is usually supposed to be, and the elimination of the question of treatment of a pedicle has removed the greatest bugbear from hysterectomy. The treatment of cancer of the vaginal portion of the cervix with galvanism, a number of needles being inserted into the

tissue, seems irrational and antiquated. If impairment of nutrition is, as stated, the object of such an operation, why not extend the logic of the question to the complete removal of the diseased structures with the gavano-cantery after Byrne's method, which has produced better results than any other method that has ever been devised for the destruction of cancerous tissues.

As regards the relief of pain and hæmorrhage of the uterus, we agree in the main with the author as to the beneficial effects of electricity. These form the most important indications, in our opinion, for the use of such an agent. But for the relief of pain the reviewer has found currents of low tension, of from twenty to forty milliamperes, more efficient than the more powerful currents which the author has recommended. We quite agree in his recommendation of the faradaic current for the treatment of undeveloped, or under-developed, or imperfectly contracted organs. Its use is based upon rational principles and it will be sure to do good if properly applied.

The author still advocates the use of electricity, preferably the galvanic current, in the treatment of ectopic gestation. But the merit of that treatment seems far less than it did a few years ago. There is an element of doubt as to its value which it would have been heresy to mention a few years ago. Scarcely any one who has seen much of abdominal surgery has not had cases of real or supposed ectopic gestation that have been successfully treated by abdominal section, and these, with the great number of their adherents, are not likely, in view of past experience, to go back to the treatment by electricity, which leaves, in many cases at least, so many questions unanswered. Though the risk of abdominal section may be greater, it results in definite information, and when we consider the dangers attending inaction the average mortality attending operative measures is astonishingly small.

One of the foremost advantages of electro-therapeutics, as we have stated repeatedly, is to gain time, to demonstrate both to physician and patient the utility or the inutility of palliative measures. But with such a condition as ectopic gestation palliation is procrastination, and the condition is too serious for any halfway measures.

*A Manual of the Practice of Medicine*, prepared especially for Students. By A. A. STEVENS, A. M., M. D., Instructor of Physical Diagnosis in the University of Pennsylvania. Illustrated. Philadelphia: W. B. Saunders, 1893. Pp. xviii-17 to 501. [Price, \$2.50.]

In the five hundred odd pages comprised in this volume the author has included a tremendous amount of material. He states that he has prepared the work, at the request of many students, to serve as an outline of the practice of medicine, "which shall be enlarged upon by diligent attendance upon lectures and critical observation at the bedside." For this purpose we can commend the book, as it is not intended to supplant the usual textbooks. Necessarily the ætiology, pathology, symptoms, complications, prognosis, and treatment are described with a terseness that will tax the student's memory. As a book to study for a quiz, it seems to be very satisfactory.

Occasionally an erroneous or incomplete statement has crept in, as on page 109, where it is stated that "normal blood contains approximately 5,000,000 red corpuscles."

*A Clinical Study of Diseases of the Kidneys*, including Systematic Chemical Examination of the Urine for Clinical Purposes. Systematic Microscopical Examination of Urinary Sediments. Systematic Application of Urinary Analysis to Diagnosis and Prognosis. Treatment. By CLIFFORD MITCH-

ELL, A. M., M. D. Second Edition. Chicago: W. T. Keener, 1891. Pp. xii to 431. [Price, \$3.]

This book, written by a practitioner of the homœopathic school, is noticeable as indicating the broadening views and increasing accuracy in the practices of that school. It has been written with particular reference to the bearing of urinalysis upon the diagnosis and treatment not only of diseases of the kidneys, but also of associated disorders.

The literature of the subject has been carefully digested, the views of the best authors have been used without stint, and due credit for the same has regularly been given. Those portions of the work devoted to diagnosis, prognosis, and dietetics we can most highly commend, but, as to those devoted to treatment, we are not in a position to criticise or indorse. A careful distinction of symptoms, and their indications for the use of various remedies, is gone into with great minuteness, and this portion of the book will be useful to any physician, whether he belongs to the author's school or not.

*Rectal and Anal Surgery*, with a Full Description of the Secret Methods of the Itinerant Specialists. By EDMUND ANDREWS, M. D., LL. D., and EDWARD WILLIS ANDREWS, A. M., M. D. Third Edition, revised and enlarged, with Illustrations and Formulary. Chicago: W. T. Keener, 1892. Pp. xiii to 164. [Price, \$1.50.]

This little work is principally an exposition of the methods and practices of itinerant, advertising, and quack specialists in diseases of the rectum and anus. It is useful in exposing the work of these men who go about the country professing to possess some secret art or knowledge, unknown to the general profession, whereby they are able to cure those who are otherwise incurable. What seems to be of value in these methods the authors have not hesitated to recommend. As a work on rectal surgery, however, the book can hardly be indorsed. Many of the recognized operations are either omitted altogether or given such passing notice as is out of proportion to their importance.

The chapter on Neuruses of the Rectum and Anus, while brief, is perhaps the best in the book, and well worth reading. A formulary is given in the appendix which will be very useful to those beginning practice in this line.

*A Manual of Obstetrics*. By A. F. A. KING, A. M., M. D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C., etc. Fifth Edition, with One Hundred and Fifty Illustrations. Philadelphia: Lea Brothers & Co., 1892.

This manual, which the author states is primarily intended for his students in the Columbian and Vermont Universities, bears evidence of its popularity in the fact that it has reached a fifth edition. It is condensed and compact—no small merit in a book for students—and it bears on many of its pages the stamp of that originality and that clearness of expression which have made the author a successful teacher of obstetrics for many years.

*Transactions of the Southern Surgical and Gynecological Association*. Volume IV. Fourth Session, held at Richmond, Va., November 10, 11, and 12, 1891. Published by the Association, 1892.

This volume, uniform in its appearance with the volumes of *Transactions of the American Gynecological Society*, contains a great quantity of very good material. The list of contributors would suggest that the association was national rather than Southern, and includes quite a number who are very apt to be

heard from in any part of the country where aggressive and progressive work is being done. We can not doubt the advantage that must accrue to the members of this society and to the communities in which they practice by this interchange of ideas. There is a manifest advantage in the union of surgeons with gynecologists in these days in which gynecology stands principally for surgery. But there may also be a danger from such intimacy, for gynecology is too broad a field to be circumscribed by any exclusive line of practice, and the man who would be most useful in this field must be both surgeon and physician.

*Diseases of the Kidneys and Bladder: a Text-book for Students of Medicine.* By W. F. McNERTY, M.D., M. R. C.S. Edin., L. R. C. P. Edin., Professor of the Principles and Practice of Medicine, University of California, etc. Philadelphia: J. B. Lippincott Company, 1892. Pp. 4-7 to 242. [Price, \$2.50.]

This work is composed of a series of lectures delivered at the University of California. It is particularly notable for the numerous and unusual names applied to the different diseases of which it treats. There are no fewer than twelve different varieties of nephritis treated of, not including tubercular, suppurating, surgical, and malignant disease, and the other subjects of the work are proportionately subdivided, all of which will tend to confuse the student. Otherwise the work is a good *résumé* of the subject. We wonder, however, that the author should jump from the kidney to the bladder, omitting the ureters altogether.

## Reports on the Progress of Medicine.

### OTOLOGY.

By CHARLES STEDMAN BULL, M.D.

**Experiments with the Tuning Fork in determining the Permeability of the Eustachian Tube.**—Politzer (*Ann. des maladies de l'oreille et du larynx*, May, 1892) gives the following results of his experiments: 1. In cases of unilateral disease of the middle ear with obstruction of the Eustachian tube, due to swelling of the lining mucous membrane, or to the accumulation of secretion, or to actual narrowing of the canal, the note of tuning fork C<sup>2</sup>, held in front of the nostrils, is heard more distinctly by the normal ear. 2. In cases of unilateral disease of the middle ear in which the canal of the Eustachian tube is not obstructed, the vibrations of tuning fork C<sup>2</sup>, transmitted by the openings of the nostrils, are, in the majority of the cases, perceived more distinctly by the diseased ear. 3. In unilateral labyrinthine disease, in which the objective examination and the other symptoms leave no doubt as to the nature of the disease, the tuning fork C<sup>2</sup>, placed in front of the nostrils, is perceived solely by the healthy ear, whether in repose or during deglutition.

**The Opening of the Mastoid Process in Cases of Acute Otitis Media following Influenza.**—Politzer (*Ann. des maladies de l'oreille et du larynx*, May, 1892) considers that it is very important to know whether the abscess is situated in the middle or inferior segment of the vertical portion of the hypophysis, especially the superficial cells situated under the cortical layer. He insists upon the point that the mastoid abscess following a protopathic otitis media is susceptible of spontaneous resolution, with absorption of the pus in the cells, while mastoiditis following *la grippe* is but little likely to terminate thus favorably, as the pus here seems to exert a destructive action

upon the surrounding tissue, and leads to caries of the apophysis. In this form of otitis media, if before perforation has occurred the drum membrane looks red and swollen, and if there is at the same time spontaneous pain in the apophysis, aggravated by pressure, the drum membrane must be punctured in order to admit of free exit to the pus. This operation sometimes suffices to prevent a mastoiditis. Ice must also be applied to the mastoid. But when the otitis, with severe symptoms, has lasted more than eight or ten days without perforation of the drum membrane, it is probable that an abscess already exists in the apophysis, and the latter must be opened. The tympanum must also be irrigated daily with some warm antiseptic solution, and Leiter's coil must be assiduously employed. He describes his method of opening the mastoid as follows: The hair is to be entirely shaved off, and the skin is then to be thoroughly cleansed with soap and water and an antiseptic solution. Then a vertical incision is to be made, half a centimetre behind the insertion of the concha, slightly concave forward and about five centimetres long, through all the tissues down to the bone itself. Then the periosteum is to be removed from the bone, so as to expose a surface of bone about a centimetre and three quarters square in extent. Then, by means of a Schwartz gouge, a large superficial piece of bone is to be removed, and this is continued until the abscess is uncovered. Then all the diseased tissue must be removed with a large cutting spoon, and the wound thoroughly cleansed with a sublimate solution. The hole is then to be packed with iodoform gauze. This must be dressed once or twice a day until all discharge has ceased and the granulations look red and healthy. When this condition has been reached, an attempt may be made to close the opening in the skin.

**The Otic Sign in Cerebral Diseases.**—Gellé (*Ann. des maladies de l'oreille et du larynx*, May, 1892) considers that clinical observation shows the importance of recognizing the presence or disappearance of this functional sign, known as the binaural reflex of accommodation, whether there is deafness or not in diseases of the middle ear, in those of the internal ear, or in intracranial diseases, which produce vertigo, tinnitus aurium, deafness, facial paralysis, etc. The absence of transition of the synergetic irritation in cases of sclerosis is a mechanical fact, which explains the simultaneous loss of the effect of centripetal impressions of the tuning fork on the hearing, added to other signs of the presence of otitis media. When a hemorrhage or an inflammation has seriously altered the labyrinthine contents, the reflex of synergetic accommodation is equally wanting. It is gone from both sides, and coincides with a limited deafness and with various disturbances of equilibrium and of the senses, which constitute the syndroma of labyrinthine lesions.

**Otitis Interna Syphilitica.**—Charagac (*Rev. de laryngologie et d'otologie*, June 15, 1892) considers that the labyrinth and the acoustic nerve may be attacked by constitutional syphilis at different phases of its evolution, either primarily without any other lesion of the auditory apparatus, or secondarily by propagation from the middle ear. When the otitis interna is isolated, sometimes the auditory nerve is attacked, and sometimes the trouble is caused by osseous or congestive lesions of the labyrinthine walls. One of the principal characteristics of syphilitic internal otitis is the rapidity with which it develops. Intense tinnitus, with frequent and painful attacks of vertigo, accompanies the deafness. There may also occur an iridochorioiditis, with acute pain limited to the region of the ear and nocturnal cephalalgia. Deafness supervenes without any known external cause, and may amount to absolute and total loss of hearing. In many cases the drum membrane and drum cavity are normal or but little affected. Syphilis of the labyrinth may



present itself as the single symptom of general syphilis, and is usually a late manifestation.

**The Treatment of Pityriasis of the Ear.**—Albespy (*Rev. de Laryngologie et d'otologie*, Aug. 1, 1892) recommends that all the hairs at the entrance of the external auditory canal be pulled out and all the epidermal masses be carefully removed by syringing with warm boric-acid solutions and by forceps. Antiseptic cotton is then taken and rolled into a cylinder about 3 cm. long and corresponding in diameter to that of the canal. This cotton cylinder is soaked in a solution of silver nitrate (1 to 20), introduced into the canal and left there for twenty-four hours. When these cylinders are removed their surface is covered with blackened and burned scales. The skin beneath is red, but does not bleed. These applications are renewed daily until there are no more scales and the walls of the canal look smooth. The solution is then changed to one of salicylic acid, Canada balsam, and collodion, and the cotton cylinders are soaked in this.

**A Tragus Retractor.**—Baber (*Arch. of Otol.*, xxi, 1) has devised a retractor which consists of a ring of flat metal about a centimetre and a half wide, made to fit firmly on the last phalanx of the surgeon's left forefinger, the ring, however, being left incomplete so that its size can be varied according to circumstances. The end of the flat band of metal forming the ring is bent back obliquely at an angle of about 45°, making a blunt hook about twelve millimetres in length. The same instrument does for both ears, and it is conveniently made of aluminium. In examining the right ear the retractor is fixed on the left index finger so that the hook points toward its dorsal surface, and while the auricle is drawn upward and backward with the left middle finger and thumb, the tragus is held aside by a forward movement of the forefinger carrying the instrument. To apply the retractor to the left ear it is fixed on the left ring finger with the hook pointing toward its palmar surface. The auricle is then pulled upward and backward with the thumb and first two fingers of the same hand, while by pressing the ring finger downward the tragus is easily retracted.

**Sarcomatous Growth in the External Auditory Canal.**—Sheild (*Arch. of Otol.*, xxi, 1) reports the case of a young married lady who had suffered from childhood from left otorrhoea. At the age of ten years Wilde's incision was done. In December, 1890, an abscess formed back of the ear and opened spontaneously. At that time there was also a strange swelling toward the posterior wall of the canal. When Sheild saw the patient there was a growth as large as a large cherry, which completely filled the canal and resembled a large mucous polypus. It was sessile, firm, non-sensitive, and apparently grew from the posterior wall of the bony canal. The watch and tuning fork were heard on contact only. On March 10th portions of the tumor were removed by snare and forceps and the rest well broken up. There was free hæmorrhage during the operation. Pure chromic acid was then applied to the spot. On April 6th a nodule as large as a pea could be seen growing from the upper and posterior wall of the canal. On the next day the nodule was thoroughly removed and the bone was persistently scraped with a sharp scoop until a shallow cavity was made. A probe being then passed in, passed through a sinus inward and backward toward the mastoid cells, from which pus came. The galvanic-cautery was then applied to the bone repeatedly. Several days later a fine curved tube was passed into the sinus and several drachms of a ten-volume solution of hydrogen peroxide was injected into the mastoid cells, and this was done daily for a week or more. By October the sinus had closed and there was no sign of a return of the growth. There was no sense of hearing except on contact. The surface of the tumor removed was entirely denuded of

epithelium; the basic substance was composed of embryonic tissue, with fusiform, round and irregular cells, some having many nuclei, and having the character of myeloid cells. In the midst of this tissue were many channels, vascular and lymphatic, which branched in all directions and were lined with flattened cells. The appearances were mainly those of a myeloid growth.

**A Handy Form of Intratympanic Syringe.**—Pritchard (*Arch. of Otol.*, xxi, 1) has devised a modification of Hartmann's syringe, which has the following advantages: 1. The rubber reservoir, instead of being in a direct line with the metal tube, is fixed at an obtuse angle and is oval in shape; the instrument does not therefore interfere with due illumination of the meatus. 2. Beneath the reservoir and of the same size a spoon-shaped metal plate is attached to the metal tube; this serves as a *point d'appui* in applying pressure with the thumb to the reservoir, which can thus be easily manipulated with one hand. 3. The fine metal tube is straight, but if it be deemed necessary to direct the stream of fluid at an angle, a small second tube is provided, curved at the tip and attachable to the straight tube by a simple plug joint.

**Deaf-mutism with Auditory Atrophy and Anomalies of Development in the Membranous Labyrinth of both Ears.**—Scheibe (*Arch. of Otol.*, xxi, 1) reports the following results of examination of the ears in a deaf-mute: The middle ear was normal, with exception of the hyperplasia and partial degeneration of the tensor tympani. The labyrinth showed atrophy of the nerves of the cochlea, sacculus, and posterior ampulla, as well as alterations in the membranous structure of the cochlea and sacculus. The rudiment of the membrana tectoria was surrounded with cells, in some places giving the impression that Corti's membrane originated as a cuticular secretion, while in others it seemed to develop between the cells themselves. The ridge on the stria vascularis proceeded directly from the bridge, which stretched from the sulcus to the stria. The abnormal insertion of Reissner's membrane which existed might be either a disturbance of development or dependent on the enlargement of the stria vascularis. Another abnormal development was the cell-holding otolithic membrane of the sacculus. The deaf-mutism was chiefly due to the atrophy of the nerves. There was no trace in the labyrinth of any former inflammation. The atrophy was confined to the nerves of the cochlea, sacculus, and posterior ampulla.

**The Labyrinth after Death from Diphtheria.**—Moos (*Arch. of Otol.*, xii, 1) emphasizes the following facts from these examinations: 1. Groups of cocci upon the external wall of the sacculus, together with molecular products of disintegration, and also in the perilymphatic tubercular reticulum of the utricle. 2. Micrococci and streptococci upon the ligaments of the membranous semicircular canals, in the layer of connective tissue of the crista of the sagittal ampulla, in the vessels of the Haversian canals imbedded in leucocytes, and upon their vascular external wall, along the endosteum of the first cochlear turn, and between the layers of the lamina spiralis ossea. These changes in the periosteum and adjacent bone he now believes to be due to direct action of the micro-organisms. Three different degrees of destruction were observed: 1. Disintegration of the greater part of the spiral ligament, and later atrophy or the formation of lacunæ. 2. Development of a sequestrum of the adjoining cochlear capsule close to the periosteum, crescentic in shape, and mostly parallel with the periosteal layer of the ligament. 3. Progress of the osseous necrosis toward the labyrinthine wall. The periosteum also showed hyaline and colloid degeneration, as did also the contents of the medullary spaces.

The destructive changes in the main trunk of the acoustic

nerve were enormous, in some instances involving its entire transverse section. The axis cylinder resisted longest. Myotic degeneration appeared independently in the peripheral branches of the nerve and also in the ganglion cells. The alterations in the region of the cochlear duct were the consequences of more or less extensive hemorrhage, and partly of a more or less considerable coagulation necrosis. The main source of the hemorrhages was situated in the region of the spiral ligament, of the endosteum of the first two cochlear turns, and also in the periosteum of the osseous lamina of the first and second turns. The coagulation necrosis was the consequence of the immigration of microbes in great number.

**Lymphoma of the Tonsils.**—Baber (*Arch. of Otol.*, xxi, 2) reports the case of a girl, aged fourteen years, a tall, thin child, who suffered from what appeared to be great hypertrophy of the tonsils which had existed for two years. They were both cut off and did not bleed much. Six months later the tonsils were again much enlarged and ulcerated. They were again removed. One month later the right tonsil was scraped out with a gland scoop. Subsequently the glands on the right side of the neck attained the size of a small orange. The inguinal glands were also much enlarged, as were also the glands in the axilla. The tonsils continued to increase in size in spite of repeated scraping with the scoop. Steady emaciation continued and the patient died in May of pneumonia. The day before death all the enlarged glands in the neck, axilla, and groin disappeared. Microscopic examination of a portion of the growth removed from the tonsils revealed a well-developed reticulum, presenting a great number of endothelial plates. Numerous lymphoid cells resembling white blood-corpuscles were inclosed in its meshes. There was a sprinkling of small round cells in places.

**The Treatment of Chronic Suppurative Otitis.**—Gradle (*Arch. of Otol.*, xvi, 2) concludes that as long as the pus of otorrhea smells fetid, the treatment employed exerts no curative influence on the disease, and the converse also holds true. Whenever we succeed in thoroughly removing all stale pus, the discharge remains free from fetid odor as long as it does not stagnate again. If the mechanical cleansing by syringing has not been thoroughly done, the use of boric acid or any disinfectant does not make the discharge odorless. The time of treatment is materially shortened by the use of antiseptic powders. The antiseptic action of boric acid is increased by the addition of salicylic acid. Sometimes retained pus can be removed by irrigation through the Eustachian tube. The most convenient tube for the purpose is the silver tube ordinarily made to fit the barrel of the hypodermic syringe. If polypi or granulation tissue dam up the pus mechanically, no treatment except their removal will deodorize the discharge or cure the disease. In the case of exostosis of the walls of the meatus, the surgical indication for their removal hinges on the impossibility of deodorizing the pent up discharge. Gradle thinks that the deodorizing efficacy of the alcoholic ethereal iodoform solutions can be better relied upon if the instillation is followed by filling the ear with antiseptic glycerin, kept in by a tight plug of cotton.

**Antrectomy as a Treatment for Chronic Purulent Otitis Media.**—Lane (*Arch. of Otol.*, xxi, 2) considers it obvious that in those cases in which a deep-seated and enlarged antrum is always covered by three quarters of an inch or more of very dense bone, suppurative disease is here infinitely more dangerous to the life of the individual than where the antrum is in immediate relationship or in direct communication with large cells in the mastoid bone. The pain which is suffered in these cases of deep-seated antrum is in most instances due to a chronic inflammation of the dura mater in immediate relation with the antrum. In such cases the antrum should be exposed by careful

use of the mallet and gouge and by scraping the cavity with sharp spoons, and then by subsequent removal of overhanging bone, so as to make the gouged inner wall of the antrum the floor or apex of a cone. Then by fixing for a considerable time a metal tube in such a position that its end rests on the obliterated inner wall of the antrum, the cavity of the antrum is permanently obliterated, and the floor of the cone becomes filled with fibrous tissue. The middle ear is then cleared of its contents, all remains of the drum head are removed, and the aperture of communication with the antrum is enormously enlarged by the removal of its outer boundary.

**Two New Aural Instruments.**—Dench (*Arch. of Otol.*, xxi, 2) has devised an instrument for inflating the middle ear with either air or medicated vapor, without removing the inflating bulb from the proximal extremity of the catheter, in making this change in the fluid inflated. The apparatus consists of a small wide-mouthed bottle in which is placed a sponge saturated with the volatile fluid, the vapor of which we desire to force into the tympanic cavity. The stopper of the bottle is provided with two short tubes, one on either aspect, which are connected with the inflating bulb on the one hand and the Eustachian catheter on the other, by means of flexible rubber tubes. By means of a small thumb-screw on the top of the stopper the core of the latter can be easily rotated, and by simply turning this thumb screw through an arc of ninety degrees the current of air from the bulb is driven either directly through the rubber tubes into the catheter and thence into the middle ear, or is made to pass down through the bottle before entering the catheter, thus charging it with the vapor contained within the reservoir. A quarter-turn of the thumb-screw suffices to effect the change from air to medicated vapor or the reverse, the catheter meanwhile remaining undisturbed in position.

The second instrument is a metal tongue for the Eustachian tube. It consists of an ordinary pure silver Eustachian catheter of medium size, along the convexity and superior aspect of which are secured several small guides. The tip of the catheter, instead of being cut off at right angles to the bore, is so formed that the section presents the shape of an ellipse. The superior aspect of the instrument for two inches, beginning at the proximal extremity, is graduated in the fractional parts of an inch. The bougies are made of German silver and are bulb-tipped. The shaft is of the same size in every instance, but the tips vary from 2 to 5 of the French scale. In operating the instrument the shaft is threaded through the guides upon the catheter, and when the bulbous tip is drawn up to the first guide it is found that, owing to the oblique section of the end of the catheter, the bulb of the dilator completes the superior wall of the tip of the catheter, thus permitting a current of air to be forced through the instrument and into the Eustachian tube, with the bougie in position. To the proximal end of the shaft of the bougie a small handle is fastened by means of a screw, thus enabling the operator to advance the bougie to any desired extent, the distance being indicated by the passage of the handle over the graduations already mentioned.

**Cerebral Abscess after Otitis Media Acuta healed by Operation.**—Trotter (*Arch. of Otol.*, xvi, 2) reports a case of this kind occurring in a gentleman aged fifty-four, and is the second case of the kind on record. In this case the chief diagnostic point was the aphasia which, according to Wernicke, indicates a disturbance in the posterior third of the first left temporal convolution of the brain. Hence it was assumed that the abscess was situated in the temporal lobe. There was also circumscribed pain in that region throughout the entire course of the attack. The paresis of the right facial nerve, the convulsions in the right arm, and the weakness in the right hand, aided the correct diagnosis. The agraphia and dyslexia were

also all explained by the increased pressure in the skull. The mastoid was opened in this case, and, although no disease was discovered, there were traces of former disturbances. The tegmen was then chiseled away, the dura mater and membranes were divided, the brain was punctured, and, after pus was revealed, the brain was pierced with the knife up to the cavity. Drainage was accomplished by means of a broad tube. The recovery was rapid and complete, and in six weeks the cavity had closed. In two weeks after the operation the patient wrote her mother as follows:

**The Mechanical Treatment of Tension Anomalies.**—Blake (*Arch. of Otol.*, xxi, 2) here discusses in a brief paper some interesting points connected with slight derangement of the comparative adjustment of the component parts of the sound-transmitting apparatus of the ear. A small strip of rubber, three millimetres wide and twelve millimetres long, introduced by forceps into the auditory canal, and the two ends allowed to spring outward against the wall of the canal, causes a pressure by the convex portion of the resultant ellipse of rubber upon the short process of the malleus, which was subsequently estimated to be equal to the support of fifteen milligrammes. A consideration of the angle at which the plane of surface of the membrana tympani is set to the long axis of the external canal, and of the adjustment of the rubber strip, one end of which rests upon the anterior wall of the canal, directly opposite the presenting surface of the short process of the malleus, shows that the pressure exerted by an elastic substance thus placed would be directly in the line which would favor the most complete apposition of the malleo-incudal articulating surfaces with reference to the transmission of mechanical movement from the first to the second bone. It would also, by counterfeiting in a measure from without the effect of muscular traction from within, favor that action of counterbalance in the preponderating weight of the ossicula above the axial line of vibration which is most favorable to the transmission of short sound-waves falling upon the membrana tympani below. In dealing with this class of cases the treatment really consists merely in the application of well-recognized surgical rules modified to meet the peculiar contingencies, and should be apportioned to the delicacy of the apparatus with which it has to deal. The treatment must also be long continued to obtain any permanent result in a condition which has become essentially chronic by the time it is brought to the attention of the surgeon. The adjustment of such mechanical appliances must always be a matter of more or less experiment, since the questions of the weight and position of the dressing and the degree of pressure exercised by it are variable factors which must be apportioned to the individual needs of the case.

**The so-called Bezold Variety of Mastoiditis; Opening of the Mastoid; Craniotomy; Death; Abscess; Abscesses in the Temporal Lobe and Cerebellum; Sinus Thrombosis on the Other Side.**—Kraupp (*Arch. of Otol.*, xvi, 3) reports a case occurring in a young woman who suffered from repeated attacks of naso-pharyngeal catarrh, extending into both ears, for about a year. The left ear recovered. The fourth and later attacks showed implication of the right mastoid, with marked meningitic irritation. The upper part of the sterno-cleido-mastoid muscle became red, swollen, and painful. Ten days after her confinement a deep incision was made into the swollen head of the muscle, liberating a quantity of pus. The relief being only temporary, the mastoid was opened from base to tip, and the wound kept open by a perforated silver tube. The patient felt relieved and comparatively well for two weeks. Then symptoms of cerebral irritation returned and lasted until her death, three months later. These symptoms were persistent headache, nausea, occasional vomiting, dizziness, stupor, impair-

ment of speech, loss of appetite, and constipation. The pulse at first varied between 70 and 88, later sank to 60. The temperature varied between 98.4° and 100°. There were no convulsions, delirium, chills, or abnormal sensation. The ear never gave her any more trouble, and there was never any discharge from the canal, though the drum-head was red and bulging. Two months before death a swelling was noticed below the head of the sterno-mastoid muscle on the other side. The left ear remained healthy. Optic neuritis developed in both eyes during the last months of life. Craniotomy was done the day before she died. The opening in the mastoid was enlarged and extended into the cranial cavity. The dura mater and lateral sinus were found healthy. Then the wound was extended into the tympanic attic, but, no pus being found here and the bone being thick and hard, the middle cranial fossa was opened through the squamous portion of the temporal, just above the auditory canal. There was no extradural suppuration, and the dura mater and superficial layers of the brain were healthy. She lived about an hour after the operation. The autopsy showed: 1. Perforation in the medial bony surface of the tip of the mastoid. 2. The upper part of the drum filled with granulation tissue. 3. The right lateral sinus healthy. 4. The dura healthy throughout. 5. The pia mater of the right temporal lobe and right cerebellar hemisphere milky and its small veins filled with pus. 6. The sinuses in the median line, those adjacent to the median line on the right side, and all the sinuses on the left side, and the left internal jugular vein, were filled with pus. 7. In the right temporal lobe an abscess as large as a walnut, and in the right cerebellar hemisphere another of the same size. 8. Microscopic specimens and cultivations from the cranial abscesses showed small bacilli and the *Staphylococcus aureus*.

**Two Unusual Cases of Intracranial Inflammation following Purulent Otitis Media with Mastoiditis.**—Dench (*Arch. of Otol.*, xxi, 3), in reporting two cases of the above nature, refers to the great danger in such cases of the intracranial structures being involved in the inflammatory process, from the extension of the inflammation from the external surface of the temporal bone. In rare cases the pus formed in the middle ear or mastoid appears beneath the periosteum, giving rise to the ordinary post-auricular abscess. The symptoms are then apt to abate somewhat, since the tension is relieved. During this interval, however, the pus borrows, dissecting up the periosteum over a large area, and thus depriving it greatly of its nutrition. The next step is a necrosis of this bone over a small area, and, as the small sequestrum breaks down, pus is absorbed by the dura mater and a meningitis set up. It is not necessary even for necrosis to occur in order to set up a meningitis, for numerous venous channels exist between the external and internal periosteum which can easily carry the infection to the interior of the cranial bones. In young children, before the ossification of the petro-squamous suture, infection is especially liable to take place; for, in many instances, this suture incloses a fold of dura mater, which increases the chance of infection.

The first case reported was that of a child, aged ten months, in whom, although the mastoid cortex had been perforated at the operation and satisfactory communication with the middle ear established, yet during the time in which the post-auricular abscess remained unopened, the periosteum had been stripped from the bone over a large area, which subsequently failed to regenerate. In this way perforation at the sutural line took place, and, as the external opening over the mastoid gradually closed, infection occurred through the sutural perforation from the pus within the abscess cavity, leading to meningeal inflammation and disintegration.



The second case occurred in a man, aged forty, and at the autopsy a hemorrhagic pachymeningitis was found extending over the entire right side, but most marked over the frontal and temporo-sphenoidal regions. There was also a small amount of pus on the internal surface of the dura. The brain was normal. Here the pus from the middle ear not being able to find an exit through the mastoid cells, owing to existing osteo-sclerosis, dissected up the periosteum of the external auditory canal and, entering the temporal fossa, burrowed beneath the periosteum, denuding the squamous and mastoid portions of the temporal bone over a large area, and causing a circumscribed necrosis of the squamous portion of the temporal bone. Meningitis then followed and assumed the hemorrhagic form.

**Destruction and Partial Ossification of both Labyrinths, probably in consequence of Meningitis.**—Steinbrügge (*Arch. of Otol.*, xxi, 3) reports the case of a ten-year-old boy who was brought to the hospital comatose and died the next day. At the autopsy the macroscopic examination of the ears showed a large perforation in the right membrana tympani, with sclerosis of the mastoid. There was a cicatrix in the left membrana tympani, with thickening of the tympanic mucous membrane and of that of the labyrinth and antrum. In the left cochlea the lower turn was plugged with connective tissue and newly formed bone. The ligamentum spirale was partly ossified and separated from the scalæ. The connective tissue extended into the aquæductus cochleæ. The nerve fibers of the acoustic nerve in the internal auditory canal were preserved in places. At the entrance of the central canal of the modiolus the nerve fibers were almost entirely destroyed. The vestibule, ampullæ, and semicircular canals were partly filled with connective tissue and partly with bony tissue, the ossification being furthest advanced in the semicircular canals. The right labyrinth showed in general the same changes as the left.

**Sinus Thrombosis, attended with Remarkable Ocular Symptoms.**—Sheild (*Arch. of Otol.*, xxi, 3) reports the case of a man, aged thirty-five, who had long suffered from right otorrhea. The right eye was more prominent than the left. There was complete right ptosis, followed three days later by left ptosis, and there was occasionally slight delirium. The patient had a dry, cracked tongue, and lay in a drowsy state. The exophthalmos was so marked as to suggest the presence of tumors in the orbit. The lids were greatly swollen and the left iris was dilated and immovable. Well-marked optic neuritis was present in both eyes. A thrombosed vein existed at the root of the nose. The discharge from the right ear was profuse, the drum-head was destroyed, and the drum cavity filled with granulations. There was no œdema or tenderness over the mastoid, but there was distinct fullness and local tenderness over the upper part of the jugular vein. The thrombosed vein at the root of the nose suppurated just before the patient's death. The exophthalmia undoubtedly depended on venous engorgement, due to blocking of the cavernous sinuses by clots, which extended by way of the petrosal and transverse sinuses from the right lateral sinus. The angular and frontal veins were also thrombosed. The evident implication of the third nerve on the left side was due to pressure in the cavernous sinus. The right facial paralysis was due to direct implication of the trunk of the seventh nerve in the aqueduct of Fallopius. The origin of the mischief was caries of the right mastoid and thrombosis of the lateral sinus. There were three small abscesses in the cerebral cortex, and a fourth in the right corpus striatum, embolic in origin. The ophthalmic veins were full of firm thrombi. The cavernous and petrosal sinuses were full of pus.

**Head Injuries with Aural Complications.**—Sheppard (*Arch. of Otol.*, xxi, 3) makes the following points: 1. The di-

vision made by Buck of fractures of the temporal bone into (1) fracture or diastasis of the tympanic or squamous portion, in the region of the middle ear, without implication of the pars petrosa, and (2) fracture of both the tympanic and petrous bones, is both tenable and practical.

2. Fractures of the temporal bone, without fatal consequences and even without loss of hearing, occur more frequently than is generally believed.

3. In all cases of suspected fracture of this part of the skull a thorough examination should be made of the external auditory canal, membrana tympani, and tympanic cavity.

**Note on the Operation for reforming the Auditory Meatus.**—Gifford (*Arch. of Otol.*, xxi, 3) reports briefly the case of a patient with lupus of the left auricle and adjacent tissues, whose auditory canal was so filled up with cicatricial tissue that he had for months maintained an opening for the exit of the slight purulent discharge only by keeping a small quill constantly pressed down into what was left of the meatus. Under chloroform the cicatricial tissue and granulations, which entirely filled the canal, were cut out, together with a large tuberculous nodule, extending deeply into the tissues at the junction of the pinna with the cheek. The canal was then thoroughly scraped with a sharp spoon, and, after having been cleaned with hydrogen peroxide, it was plastered throughout with thin Thiersch flaps taken from the forearm. Aristol was then filled in around a small glass tube which reached nearly to the middle ear, and a moist dressing was then applied and left for two days. The flaps healed perfectly, and for several weeks the man had a well-formed canal lined with healthy epithelium.

An injection of tuberculin led to the discovery of a tuberculous deposit in the mastoid cells, the eradication of which demanded the destruction of the greater part of the recently formed canal.

**The Anatomy and Embryology of the Middle Ear in Man and the Mammalia.**—Dreyfuss (*Arch. internat. de laryngologie, de rhinologie et d'otologie*, Sept.-Oct., 1892) gives the following results of his investigations: 1. The malleus and the incus are derived from the first visceral arch and represent the proximal extremity. 2. The blastema of the proximal extremity of the first visceral arch is contiguous to the blastema of the ring of the stapes. 3. Later the blastema of the proximal extremity of the first visceral arch is transformed into the fetal connective tissue of the tympanic cavity. 4. The handle of the malleus and the inferior branch of the incus are developed simultaneously from the common ring of the skeleton of the first visceral arch. 5. The upper branch or process of the incus is developed later. 6. The ring of the stapes is found at first free in the mesodermal connective tissue. 7. The ring of the stapes is situated between the proximal blastema of the first visceral arch and the proximal blastema of the second. 8. In the prechondral capsule of the labyrinth there are early formed two distinctly defined zones: one oval lamina, that of the oval window; and one round lamina, that of the round window. 9. The prechondrium of the round window is changed directly into connective tissue. 10. The orbicular ligament of the base of the stapes is formed chiefly from the prechondrium of the oval window and from certain cells of connective tissue. 11. The ring of the stapes forms alone the future stapes. 12. The lenticular apophysis of the incus is not an independent formation, but merely the extreme end of the inferior process of the incus. 13. The communication between the extremity of Reichert's cartilage and the capsule of the semicircular canals is formed by means of an intercalary piece. 14. The styloid apophysis of Politzer is composed of the proximal end of Reichert's cartilage, of the intercalary piece, and of the limiting zone

of the capsule of the semicircular canals. 15. The drum membrane is situated in the first branchial fissure, and is composed in the beginning of three layers. 16. The middle layer of the drum membrane is a non-ossified part of the tympanic ring. 17. The external auditory canal is formed by the development of a fold; the drum membrane is at first a part of the facial wall. 18. The slender process of the malleus unites in man, at the sixth month of fetal life, with the bony neck of the malleus. 19. The upper part of the future tympanic cavity is filled in the fetus with mucous tissue, in which are inclosed the ossicles. 20. The handle of the malleus is early developed by a lacuna between the situation of the temporal scale or shell and that of the tympanic ring. 21. The fissure of Rivinus and the membrana flaccida of Shrapnell mark the point of exit of the handle of the malleus from the upper part of the tympanum. 22. The fissure of Rivinus does not exist at any period of either intra-uterine or extra-uterine life.

## Miscellany.

**The Bacteriological Investigation of Supposed Cholera Cases.**—The directors of the Carnegie Laboratory of the Bellevue Hospital Medical College, Dr. A. Alexander Smith and Dr. Frederic S. Dennis, have issued the following announcement:

"In view of the possible advent of cholera to this country during the coming summer and the great importance of biological examinations in the diagnosis of this disease, the directors of the Carnegie Laboratory announce that they have arranged for short courses on this subject, to be open to representatives of health boards, health officers, and properly accredited medical men. It is designed that these courses shall have the same general scope and fulfill the same purpose as the cholera courses given at the Hygienic Institute in Berlin by Professor Robert Koch in 1886 and 1887. They will be under the direction of Dr. Edward K. Dunham, who has worked considerably on cholera in Germany and, recently, in this country.

"It is extremely desirable that there should be medical men throughout the country who are trained in the biological diagnosis of epidemic cholera, so that if doubtful cases appear in any locality there may be at hand men competent to at once make satisfactory biological examinations. The first cases of Asiatic cholera in the beginning of an epidemic are always doubtful cases, and it is only by means of biological examinations that a definite conclusion can be reached as to their nature.

"The courses will begin about the 20th of January, 1893, and each course will continue for about two weeks. The fee, to cover expenses incurred, will be \$25. Applications for admission to the courses should be made in advance to the directors of the Carnegie Laboratory."

**The Registration of Physicians, Midwives, and Pharmacists according to Local Legislation.**—We are indebted to Dr. R. Harvey Reed, of Mansfield, Ohio, for a copy of the new ordinance adopted by that city to the following effect:

It shall be the duty of every physician, midwife, and pharmacist practicing in the city of Mansfield, Ohio, to register in a suitable book prepared therefor by the health officer, which register shall contain the name, the street address, the college at which said physician, midwife, or pharmacist graduated, and date of said graduation, and, further, that on and after the adoption of this ordinance no person shall be permitted to practice the art of medicine, surgery, midwifery, pharmacy, or dentistry or sell medicine or drugs from house to house or on the streets without registering with the health officer, and furnishing him, when so required, a sample bottle of the medicine to be sold for analysis, and displaying to him a certificate from the State Board of Pharmacy, in the case of druggists, or a diploma of graduation from a rec-

ognized chartered medical or dental school, in the case of a physician, surgeon, midwife, or dentist.

And that such persons shall not be eligible to receive a license from any city officer until he has displayed the above-mentioned documents or drugs, as the case may be, to the health officer and received a certificate from him to the proper city officer, who then shall have the privilege of issuing the said person the necessary license, which shall not be less than \$10 or more than \$50 a day.

And, further, that any person violating this ordinance shall be subject to a fine of not less than \$50 or more than \$100 for each offense.

In the selling of drugs, this ordinance is not intended to apply to regularly recognized traveling salesmen who deal directly with the physicians or druggists of the city.

**The New York Academy of Medicine.**—At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 25th inst., Dr. Robert C. Myles will read a paper on Diseases of the Accessory Sinuses; the Treatment and Indications for Operation.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 26th inst., Dr. E. H. Grandin will read a paper entitled A Clinical Study of Puerperal Peritonitis.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

ON CERTAIN ORGANIC EXTRACTS:  
THEIR PREPARATION  
AND PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS.

By WILLIAM A. HAMMOND, M. D.,  
SURGEON-GENERAL, U. S. ARMY (RETIRED LIST).

SINCE the experiments of Brown-Séquard, more than three years ago, observers in various parts of the world have been engaged in similar investigations, not only with the juice of the testicles, but with extracts obtained from other glands of the body. So far, however, as I am aware, no systematic researches have been undertaken along the line of those the details of which I am about to give, and with which I have been occupied almost continuously since the summer of 1889.

In the *New York Medical Journal* for August 31, 1889, I published a report of some of the results obtained by me with the expressed juice of the testicles of the ram. The cases reported were one of traumatic neuritis, which was entirely cured by one injection, after having lasted longer than a year; two of cardiac weakness, with some of the symptoms of so-called neurasthenia, one of which has remained entirely cured without subsequent treatment, and the other (Case II), after repeated injections at different periods, is now entirely well; one of sexual impotence, in which there has been no relapse; two of muscular rheumatism and lumbago, which have remained cured; one of hemiplegia, the result of cerebral hæmorrhage, in which the patient was improved in walking, as reported, but who subsequently died from a second attack; one of melancholia, with fixed delusions, which underwent no improvement and of which I know nothing subsequently; and one patient suffering from cardiac asthma, the result of excessive mental work, and whose cure has continued to this day.

In regard to these cases I said:

"It is not necessary for me to draw any conclusions from these experiments, as they speak for themselves. It will be seen that there is evidence to show that we have in the testicular juice a valuable addition to our materia medica, the precise worth of which, however, it is not yet in our power to establish."

So far, I have nothing to retract from what was stated in the article in question; but the paragraph before the final one I am obliged, as the result of much more extensive observation, to take back, so far, at least, as it expresses a preference for the expressed and fresh juice. It is as follows:

"One point further seems to call for some consideration. I have observed that some of the experimenters sterilize the testicular juice before using it. If there is any virtue whatever in the liquid, it would be entirely destroyed by such a process. It might as well be boiled as sterilized. Experiments with such a substance are absolutely valueless. Sufficient immunity against the propagation of disease can be obtained by examining the fluid microscopically before it

is injected into the system. Whatever is capable of killing the germs of disease would be equally capable of killing the vital germs upon which the testicular juice depends for whatever efficacy it may possess."

So far from these statements being correct, I am satisfied that the method I am about to describe results in the procuring of a far more powerful agent than is the fresh juice, and that the latter can not always be used with safety, liable as it is to produce local abscesses and serious constitutional disturbance. In more than a third of the cases in which I have used it abscesses were produced, and in several painful swelling of the arm into which the injection was thrown, with fever, and in one case delirium.

Since that time I have not only continued to use the extract of the ram's testicles in those cases in which I conceived it to be indicated, but have extended my observations to a study of the influence exerted on the human body by the extract of other organs, especially that of the brain, the spinal cord, the pancreas, the thyroid gland, and the heart. For the three years past I have pursued these investigations, and if I have not rushed into print as soon as some others it is only for the reasons that time has been required to prepare the extracts according to the processes I have found most advantageous, and that I did not wish to commit myself to opinions that further examination might prove to be erroneous. The time now, however, seems to have arrived at which I can lay the main points of my researches before the medical profession. I do not give them all at this time, for I have not yet reached definite conclusions in regard to all the matters embraced within the line of my investigations. I state, however, sufficient to give a clear idea of the theory upon which they have been conducted, and which, as it will presently be seen, admits of very extended amplification. I am quite sure that the system I am about to bring to the notice of the profession is not only well founded in fact, but is in accordance with physiological law, and that we have in it philosophical means of combating disease, of which I can only lay some part of the foundation, but which, through the accumulation of material by other observers, will eventuate in the erection of a permanent and worthy therapeutical structure.

This system, briefly stated, is as follows:

Organic beings possess the power of assimilating from the nutritious matters they absorb the peculiar pabulum which each organ of the body demands for its development and sustenance. The brain, for instance, selects that part which it requires, the heart the material necessary for its growth and preservation, and so on with the liver, the lungs, the muscles, and the various other organs of the body. No mistake is ever committed. The brain never takes liver nutriment, nor the liver brain nutriment; but each selects that which it requires. There are, however, diseased conditions of the various organs in which this power is lost or impaired, and, as a consequence, disturbance of function, or even death itself, is the result.

Now, if we can obtain the peculiar matter that an organ of the body requires and inject it directly into the blood, we do away with the performance of many vital processes



which are accomplished only by the expenditure of a large amount of vital force.

Let us suppose a person suffering from an exhausted brain, the result of excessive brain-work. Three hearty meals are eaten every day, but, no matter how judiciously the food may be arranged, the condition continues. Now, if we inject into that person's blood a concentrated extract of the brain of a healthy animal, we supply at once the pabulum which the organ requires. Then, if under this treatment the morbid symptoms disappear, we are justified in concluding that we have successfully aided Nature in doing that which, unassisted, she could not accomplish.

That is the system. I believe it is applicable not only to the brain, but to all the other organs of the body.

And yet I am not quite sure that it is entirely new. I recollect reading nearly forty years ago an account of some observations made by, I think, a German physician relative to the treatment of diseases of the several organs of the body by a system of diet consisting of the corresponding organs of healthy animals. Thus liver disease was treated by beef's liver, heart disease by beef's heart, brain disease by beef's brain, and so on. My memory seems to be clear on the main point, but I have searched in vain for the paper to which I refer. The fact, however, that the various foods in question were cooked and were taken into the stomach constitutes a great difference with the system which I am now discussing, both physiologically and therapeutically, and the results do not admit of comparison. The germ of the idea, however, is the same, and I cheerfully yield to my unknown proto-observer whatever distinction may be claimed on the score of priority.

Besides, there have been isolated observations made within the last two or three years by German and French physicians which are to some extent in accordance with those which I have been conducting, but they do not seem to have led to any definite results or to have been systematically carried out. Generally they have been performed with the fresh juice of the organs, and although at first sight this method would appear to be preferable to any other, experience shows that it is, as I have said, not unattended with danger. Thus the organ may not be entirely fresh, morphological matter is almost certain to be injected, it is nearly impossible to filter the juice through a porous stone filter, and when passed through common filtering-paper substances injurious to its action and provocative of local abscesses and constitutional disturbance can not be excluded. Indeed, these results have frequently followed from the experiments of others, and I have myself, as I have stated, often encountered them, notwithstanding that all possible care was taken in the preparation and administration of the agent. The method, however, which I have finally adopted never produces either morbid local or general disturbance beyond a slight smarting at the time of injection and occasionally a little subsequent itching and erythema, and it is that also from which I have derived the maxima of beneficial effects. It has been arrived at after many trials and consequent disappointments, and it is one which, with our present knowledge of the subject, I do not think can be advantageously departed from.

Taking the brain as a type of the process employed—and it is not materially varied with the other organs of the body—it is as follows:

The whole brain of the ox, after being thoroughly washed in water acidulated with boric acid, is cut into small pieces in a mincing machine. To one thousand grammes of this substance placed in a wide-mouthed glass-stoppered bottle I add three thousand cubic centimetres of a mixture consisting of one thousand cubic centimetres each of a saturated solution of boric acid in distilled water, pure glycerin, and absolute alcohol. This is allowed to stand in a cool place for at least six months, being well shaken or stirred two or three times a day. At the end of this time it is thrown upon a porous stone filter, through which it percolates very slowly, requiring about two weeks for entirely passing through. The residue remaining upon the filter is then inclosed in several layers of aseptic gauze and subjected to very strong pressure, the exudate being allowed to fall upon the filter and mixed with a sufficient quantity of the filtrate to cover it. When it has entirely filtered it is thoroughly mixed with the first filtrate, and the process is complete.

During the whole of this manipulation the most rigid antiseptic precautions are taken. The vessels and instruments required are kept in boiling water for several minutes, and are then washed with a saturated solution of boric acid. Bacteria do not form in this mixture under any circumstances, but it is necessary to examine it from time to time microscopically in order to see that no foreign bodies have accidentally entered. Occasionally, from causes which I have not determined, the liquid becomes slightly opalescent from the formation of a flocculent precipitate. This is albuminous in its character. It sometimes takes place in a portion of the extract kept under apparently identical conditions with other portions that remain perfectly clear. It is certainly not an essential constituent. It can be entirely removed by filtration through Swedish filtering paper previously rendered antiseptic without the filtrate losing any of its physiological or therapeutical power.

Five minims of this extract diluted at the time with a similar quantity of distilled water constitute a hypodermic dose.

The most notable effects on the human system of a single dose are as follows, though in very strong, robust, and large persons a somewhat larger dose is required, never, however, exceeding ten minims:

1. The pulse is increased in the course of from five to ten minutes, or even less in some cases, by about twenty beats in a minute, and is rendered stronger and fuller. At the same time there is a feeling of distention in the head, the face slightly flushed, and occasionally there is a mild frontal, vertical, or occipital headache, or all combined, lasting, however, only a few minutes.

2. A feeling of exhilaration is experienced which endures for several hours. During this period the mind is more than usually active and more capable of effort. This condition is so well marked that if the dose be taken at about bedtime wakefulness is the result.

3. The quantity of urine excreted is increased when other things are equal by from eight to twelve ounces in the twenty-four hours.

4. The expulsive force of the bladder and the peristaltic action of the intestines are notably augmented—so much so that in elderly persons in whom the bladder does not readily empty itself without considerable abdominal effort, this action is no longer required, the bladder discharging itself fully and strongly, and any existing tendency to constipation disappears, and this to such an extent that fluid operations are often produced from the rapid emptying of the small intestine.

5. A decided increase in the muscular strength and endurance is noticed at once. Thus I found in my own case that I could "put up" a dumb-bell weighing forty-five pounds fifteen times with the right arm and thirteen times with the left arm, while after a single dose of the extract I could lift the weight forty-five times with the right arm and thirty-seven times with the left arm.

6. In some cases in elderly persons an increase in the power of vision is produced and the presbyopic condition disappears for a time.

7. An increase in the appetite and digestive power. Thus a person suffering from anorexia and nervous dyspepsia is relieved of these symptoms, temporarily at least, after a single dose hypodermically administered.

These effects are generally observed after one hypodermic injection, and they continue for varying periods, some of them lasting for several days. In order that they may be lasting, two doses a day should be given every day or every alternate day as may seem necessary, one in the morning and one in the afternoon, and kept up as long as the case under treatment seems to require. The most notable effects are seen in the general lessening of the phenomena accompanying advancing years. When some special disease is under treatment the indications for a cessation of the injections will be sufficiently evident either by an amelioration or cure or a failure to produce these results.

To the substance obtained in the manner mentioned and held in solution I have given the name of cerebrine as the one, in view of its origin, most appropriate.

I have employed the solution of "cerebrine" with decided advantage in cases of nervous prostration—the so-called neurasthenia—in insomnia due to cerebral hyperemia, in migraine, hysteria, general paresis, hebephrenia, and epilepsy. In these latter—two cases of the *petit-mal* variety—the effect has been so marked that I am not without the hope that cures will result, although I am not able as yet to speak positively on this point, the patients having been less than a month under treatment. In two cases of the *grand mal* the number of paroxysms has been reduced more than one half and greatly mitigated in severity. In six other cases which were of long duration I could perceive no curative effect.

In the case of general paresis no permanent therapeutic influence was apparent, though for several days the *délire de grandeur* was absent. In the case of hebephrenia, however, occurring in the person of a young lady eighteen years of age, the effect has been most happy, the symptoms

entirely disappearing in a little more than a month's treatment.

In two cases of nervous prostration, the result of long-continued emotional disturbance and in which there were great mental irritability, dyspepsia, physical weakness, loss of appetite, and constipation, relief was rapidly afforded. In three other cases, in which the most notable symptom was functional cardiac weakness, the effect has been all that could have been desired. In these cases it was employed in conjunction with "cardine," the extract of the heart of the ox made in the manner already described.

It is not my intention at the present time to enter into a full discussion of this interesting subject or to allude further to experiments in the treatment of other diseases which are not yet concluded. In the near future I shall enter more largely into the consideration of the subject in all its details. I may add, however, that I have used with excellent results, in cases in which it seemed to be indicated, the extract of the testicles of the bull and also that of the pancreas of the ox, and these investigations also will be given to the profession at an early day.

It is alleged by some medical writers that there is no difference in the therapeutical effects of medicines whether they be taken directly into the blood by hypodermic injection or ingested into the stomach; but it is scarcely worth while to seriously combat this assertion. For, while it may be true that some substances are not altered by the gastric juice before they are absorbed into the system, it certainly is not true of many others, and it surely is erroneous as regards those of animal origin. Indeed it is, I think, doubtful if anything capable of being acted upon by the gastric juice and of being absorbed into the blood gets into the system in exactly the same form in which it got into the stomach.

Thus the vaccine virus may be swallowed with impunity, as may also the poison of the rattlesnake and of other animals secreting toxic agents. Upon one occasion I gave a young dog, by the mouth, twenty minims of fresh rattlesnake poison without its having the slightest perceptible effect upon him. I need not say that this quantity would have been sufficient to kill at least fifty men. Woorara, which is, as is well known, fatal to animal life when injected into the blood, is innocuous when taken into the stomach, and even those that do possess some action when swallowed exert this power in much less degree and require larger doses for it to be produced.

Relative to the animal extracts to which this communication refers, I have ascertained beyond question that if they are inclosed in capsules so as to reach the stomach without coming in contact with the mucous membrane of the mouth, they are absolutely without physiological or therapeutical effect so far as can be perceived, even when given in quantities of a teaspoonful or more. But if dropped upon the tongue in double the quantity used for hypodermic injections, and allowed to remain in the mouth without being swallowed—thus avoiding the action of the gastric juice—they are absorbed, and exert a slower but still decided effect. If employed in this manner, three or four doses should be taken daily. Ten minims of the solu-

tion of cerebrine placed upon the tongue of a healthy person will cause acceleration of the pulse, flushing of the face, and slight headache in ten or fifteen minutes, together with the other phenomena I have mentioned.

I have expressed the opinion that the substance extracted from the brain and other organs is the material required for the nutrition of the corresponding organs of the body, but this is only a theory to which I am not in the slightest degree attached, though I think it physiological and plausible. It may be that the mixture of uric acid, alcohol, and glycerin exerts a metamorphic influence and causes the formation of a ferment having the power of restoring to the weakened brain or other viscous the lost or impaired power of assimilation. However this may be, the facts remain unaltered.

WASHINGTON, D. C., January 14, 1893.

## THE AFTER-RESULTS OF NASAL CAUTERIZATION.\*

By THOMAS AMORY DE BLOIS, M. D.,  
BOSTON.

It seems as if in the majority of cases, if we come to tabulate our results, we are struck at once by the fact of the small number of patients in whom we are able to follow the results of treatment—that is, even immediately after operation. How much more is this true if we seek to know the result of operation, say, one or two years afterward! Of course it is very flattering to our vanity to believe that we have so thoroughly cured our patients that they do not require any more advice. But, like the child of the proverb who, once having been burned, in future dreads the fire, so it is probably true that many of them, rather than again undergo the fiery ordeal, seek some other physician, whom they fondly believe will not be so harsh in his treatment.

We have all seen the cocainized membrane sizzle and fry under the hot platinum; we have in ten days to two weeks thereafter seen the patient return with atrophied tissue and more or less relieved of his troubles; but in how many of these cases have we been able to say in two years in what condition is the nose or throat? Will the condition in which we leave it continue, will atrophy progress, or will the former hypertrophies return? You will agree that much depends on the individual's condition and some on the operation itself.

With regard to the operation, I do not think it makes much difference whether the erosion is produced by the action of acids or of the hot wire, heated either by a lamp or by the electric current. The acid is a little more painful and for a longer period, and its action is more difficult to limit, but the results are about the same. If the destructive action is carried on long enough it will produce effects as far down as the bone and there will be a buttoning down of the tissues in one spot—of course

the most sensitive and probably the most salient that the operator is able to reach; this eschar will be prolonged front or back according to his fancy, or according to the results of his experience. Perhaps the wound will be broadened so as to involve a wider band of mucous membrane. This may result in the first instance in greater inflammation and the period of healing may be extended to three weeks. Or again a series of repeated operations may be carried on and the mucous surfaces may thus be extensively cicatrized. Allowing that perfect cicatrization takes place in about ten days, the operation will probably be repeated, perhaps more than once, and after this the patient is lost sight of. Having come upon a number of these cases one or two years after operation, it seemed as if it might be interesting to observe the subsequent changes which took place.

CASE I.—Miss M. N., a patient whom I had, as I believed, thoroughly burned with chromic acid at the Boston Dispensary for hypertrophy of both lower turbinated bones three years previous, stated that she had had little trouble for about two years, but that then the difficulty of breathing appeared to return. Both turbinates showed a broad band of cicatricial tissue, but above and below the membrane was red and swollen.

CASE II.—Mr. J. O. H.; burned at dispensary by a colleague (galvano-cautery). In this case the original operation was deeper and narrower and the original eschar was not crowded to the front as in the first case, but appeared to be in a certain sense adherent to the bone. So far as the part burned went, the operation remained perfect, but there was still the proliferation of tissue on each side of the point of operation. The operation with the cautery on these new hypertrophies was of course repeated.

CASE III.—T. O'K. This patient I remembered well as having shown signs of inflammatory trouble after perhaps a too free use of the cautery knife. The liberal scars produced at the time of operation remained and he had developed a condition of atrophy of the membrane and the consequent accompanying symptom of fetid breath. I have not the slightest doubt but this condition was in some sense helped along by too great zeal in the line of mucous destruction.

CASES IV and V were both similar to Case I—*i. e.*, where the galvano-cautery, which was the instrument used, had not been carried deep enough, the white eschar was there, but it was, so to speak, buoyed up by the tissues beneath until it formed almost as great a plug as before.

CASE VI.—Moses T. This was a most peculiar case. This man had been constantly under treatment for between three and four years, during which time he had vibrated between the different hospitals and dispensaries and had developed the reputation of a "hospital rounder." He had a nose of huge proportions in the first place, and this was filled with the most wonderful development of mucous membrane in corrugated folds. All this had been cut and snipped and burned, but without any apparent effect; the passageway through was never sufficiently clear for use, and yet he had been under operative treatment for years.

But it is needless to cite more cases. I have merely endeavored to draw attention to the different forms of sequelæ of nasal cauterization. First, that in which you do not burn enough and the parts nearly regain their former condition; second, in which you do too much and produce a nose lined with old scars, and between this "Scylla" and

\* Read before the American Laryngological Association at its fourteenth annual congress.



"Charybdis" of course there is smooth sailing, but we can not always find it; and, fourth, there are some cases that the cauterly appears never to reach.

## A CASE OF SUPPURATING ETHMOIDITIS.\*

By J. H. BRYAN, M.D.,  
WASHINGTON.

The following is a report of an interesting case of suppurating of the ethmoid cells, terminating in caries, and it illustrates a condition which has been described as *rhinitis caseosa*:

In October, 1891, Mrs. —, aged twenty-eight, an anæmic and hysterical woman, consulted me. She gave a good family history, and stated that up to the time she contracted influenza in the spring of 1891 she had enjoyed fairly good health, and that she had been particularly free from catarrhal inflammations affecting the upper respiratory tract. Since the attack of influenza, from which she made a very slow recovery, she has had what she regarded as a severe cold in the head.

In March of the same year she suffered from caries of the upper left second molar tooth. Her dentist destroyed the nerve and cut the tooth down in order to apply a gold crown. She was evidently handled roughly, for a severe alveolar abscess developed after the gold crown had been fitted. The left side of the face was intensely swollen and sensitive, and she thought her nasal symptoms were greatly aggravated.

In the early part of July the left side of the nose became closed, and she has not been able to breathe through it since. The secretions, at first watery in character, have become thick, fetid, and very profuse, discharging freely both from the front of the nose and into the post-nasal space. She complains also of an intense pain over the bridge of the nose, extending along the infra-orbital ridge to the temporal region of the left side. Her headaches have been so severe that she has been unable to sleep without the aid of anodynes. The impression made upon her general health has been very severe. She has no appetite, and is nervous and hysterical. There is no exophthalmia, no disturbance of the field of vision, or any swelling at the inner angle of the orbit. There is severe pain on pressure on the eyeball, and at the inner angle of the orbit a crepitating sensation, perceptible to the patient, is produced by slight pressure. She complains of pain and a sense of pressure back of the eyeball.

A rhinoscopic examination showed the right side of the nose to be in a fair state of health, there being only a slight turgescence of the inferior turbinated body. On the left side two medium-sized mucous polypi were found attached to the anterior extremity of the middle turbinated bone. The inferior turbinal was very much swollen and partially blocked up the vestibule of the nose, which was filled with a thick caseous and foul-smelling secretion. The polypi were removed with the snare, and the inferior turbinated body, contracted by means of cocaine, allowed the middle turbinated body, which was greatly swollen and projected over against the septum, to be brought into view. A posterior rhinoscopic examination showed the middle and inferior turbinated bodies swollen, and the same thick caseous secretion passing over the posterior extremity of the middle turbinal into the post-nasal space. After snaring off the polypi, the nose was cleared of all secretion so that a more careful examination could be made. The secretion was

observed to come both from the middle meatus and from above between the middle turbinated body and the septum.

Examination with electric light showed the left antrum to be opaque while its fellow of the opposite side remained translucent as high as the infra-orbital ridge, thus revealing the fact that the left antrum was affected and complicated the inflammation of the ethmoid cells. The nose was thoroughly cleansed of all secretion, the second molar tooth extracted, and the antrum perforated at that point. Upon washing out the cavity it was found to contain about a teaspoonful or more of a thick, mucopurulent secretion, differing in character from that observed in the nose. There was some evidence of necrosis around the buccal root, and upon breaking open the tooth the pulp cavity and the roots were found to contain decomposing nerve tissue which had not been removed, and which, in all probability, was the cause of the inflammation having extended into the maxillary sinus. The inflammation in the antrum subsided in the course of a week under the local applications employed, while, on the other hand, the caseous secretion showed no tendency to diminish after the nose had been treated daily with the peroxide of hydrogen and other antiseptic lotions for several weeks. The headache and orbital pains increased in intensity, and the general health of the patient continued to grow worse.

In the mean time the polypi redeveloped and were removed as before by means of the snare. In doing so a small spiculum of bone was removed from the anterior extremity of the middle turbinated body, but the opening made was not sufficiently large to admit of the abscess discharging its entire contents. There was a slight increase in the amount, but not enough to give the patient much relief, for she suffered intensely after the operation and passed a sleepless night. The following morning, however, as she was on her way to my office, the abscess discharged spontaneously a great quantity of thick caseous secretion both from the front of the nose and into the post-nasal space. While she was made quite ill by the fetid mass passing into the mouth, and came near fainting in the street, she experienced almost immediate relief from the headache and pain in the eye.

When she reached the office I found, upon examination, the nose was entirely free from secretion; and while the contour of the middle turbinated body was maintained, it had apparently been drawn outward toward the orbit, thus obliterating the middle meatus. The opening caused by the detachment of the polypi could not be found, and no rough bone was detected with the probe.

The patient was kept under observation for ten days, and during that time the nose was free from secretion; the pain in her head and eye ceased, and her general health improved. Within the past week I have had an opportunity of examining the patient again, and I found the parts in much the same condition as when last examined, except that the anterior extremity of the middle turbinated body seems to have been drawn nearer to the orbit than the rest of the body.

In 1874 Duplay (1) described an affection of the nose as *rhinitis caseosa*, a disease that had been previously alluded to by Nélaton (2). He states that the affection is very rare, and is characterized by an accumulation in the interior of the nasal cavities of a caseous material analogous to the contents of certain sebaceous cysts, and that the disease frequently goes unrecognized.

It is evident that Duplay was mistaken and misinterpreted the symptoms of the cases he had under observation, judging from the silence with which the subject is treated by most of the German, English, and American au-

\* Read before the American Laryngological Association at its fourteenth annual congress.

thorities. Potiquet (3) denies the existence of such a disease, and states that Duplay's conclusions were based on errors in diagnosis. Cozzolino (4), on the other hand, says that it is a very rare disease, and considers it a desquamating rhinitis observed principally in scrofulous subjects. He considers it also analogous to a condition of the middle ear where cholesteatomatous masses are found in the tympanum and mastoid cells, and suggests the name of cholesteatomatous rhinitis. Schleicher (5) believes the caseous secretion is accounted for by the degeneration of mucous polypi. Lennox Browne (6) says that no satisfactory account of the disease has been given; but it seems to be due to long-retained secretions originating in the superior meatus, or in one or more of the accessory cavities of the nose, and that it is usually associated with caries of the ethmoid bone. He states that Hall has seen the sphenoidal sinus filled with this caseous material in five instances, in dissecting-room subjects of advanced age, in which there was no disease of the bone present. In my case I believe the affection commenced as a simple rhinitis in the course of an attack of *la grippe*, and extended to the ethmoid bone, terminating in suppurating and in caries of the bony trabeculae of the ethmoid cells. I have met with this caseous secretion in two other instances, but in neither of them was the secretion so profuse as in the above case. It occurred once in a case of caries of the middle turbinated body, and in the other in a case of abscess of the antrum of long standing in which there was caries of the alveolar process.

In well-marked cases the diagnosis of abscess of the ethmoid cells is not a difficult matter, but in the majority of instances the symptoms are obscure, and there is frequently an implication of one or more of the neighboring sinuses so that it is almost impossible at times to state positively which is the source of the pus. The diagnosis must then be made from the following symptoms, some of which may be occasionally absent: A swollen condition of the middle turbinated body, the presence of pus in the middle meatus, and, if the posterior cells are involved, the presence of pus flowing over the posterior extremity of the middle turbinated body into the post-nasal space; the absence of the pulsating light reflex, which is observed in abscess of the antrum; swelling at the inner angle of the orbit; exophthalmus; narrowing of the field of vision; crepitation on pressure over the inner angle of the orbit; pain in the orbit and along the infra-orbital ridge. The presence of pus in the middle meatus is common to inflammations of the frontal and maxillary sinuses as well as to that of the ethmoid sinus, and it is very difficult at times to trace it to its source; but, according to Max Schaeffer (7), in pain we have a much more reliable symptom in differentiating between abscesses of the various sinuses. In case of the frontal sinus pain is felt at the root of the nose, and extends along the supra-orbital ridge, while in ethmoidal affections it extends along the infra-orbital ridge; and in my experience it is noticeably absent in chronic abscesses of the antrum.

The complications of suppurating ethmoiditis most frequently met with are abscess of the antrum, abscess of the orbit, and meningitis.

While in the above-cited case the antral complication was purely accidental and was dependent upon a carious tooth, it is a very frequent complication, as is evidenced by the fact that Bosworth, in his valuable paper on the various forms of disease of the ethmoid cells, read before this association at its last meeting, mentioned thirteen cases of suppurating ethmoiditis, seven of which were complicated with abscess of the antrum. The frequency of this complication may be accounted for in several ways: 1. The opening of the anterior ethmoid cells and that of the antrum lie very close together in the hiatus semilunaris, and inflammations of the nose affecting one cavity would be most likely to extend to the other. 2. Mechanical obstruction, either from polypi or hypertrophic rhinitis, causing the mucus to be confined in both sinuses, and a consequent purulent inflammation resulting. 3. Pus accumulating in the middle meatus and working its way into the antrum. 4. Owing to an anomalous condition of the ethmoid bone in which the anterior and posterior ethmoid cells communicate with the antrum. We do not know how often this anomaly occurs, and in some instances where the neighboring sinuses communicate with each other, the openings may be pathological; but in others they are natural, as is well illustrated in a specimen in the Army Medical Museum, in which the frontal sinus opens directly into the summit of the antrum.

While the indications for treatment in the above case were perfectly plain, and the patient could have been saved much suffering had she accepted surgical aid, we must remember, before resorting to severe measures, that these abscesses sometimes discharge spontaneously, and others are relieved in the course of the removal of polypi. In the great majority of cases, however, it will be found necessary to open the cells so that free drainage can take place, and any necrosed or carious bone removed. For this purpose I have found the snare and a sharp curette preferable to the drill.

1. *Traité de pathologie externe*, t. iii, 1874.
2. *Éléments de pathologie chirurgicale de Nélaton*, iii, second ed., 1874, p. 715.
3. *Gazette des hôpitaux*, February 2, 1889.
4. *Annales des maladies de l'oreille*, etc., October, 1889.
5. *Annales des maladies de l'oreille*, etc., July, 1890.
6. *Diseases of the Throat and Nose*, third edition, London, p. 580.
7. *Deutsche med. Wochenschrift*, October 9, 1890.

509 SEVENTEENTH STREET.

## A CLINICO-PATHOLOGICAL STUDY OF INJURIES OF THE HEAD.

WITH SPECIAL REFERENCE TO  
LESIONS OF THE BRAIN SUBSTANCE.

By CHARLES PHELPS, M. D.,

SURGEON TO BELLEVUE AND ST. VINCENT'S HOSPITALS.

(Concluded from page 71.)

### THROMBOSIS OF THE SINUSES.

THE occurrence of thrombi in the sinuses of the dura mater and base of the skull in three cases, under varying circumstances, is not in all of them susceptible of adequate

explanation. In the first case, which, like the second, involved fracture at the base, the posterior part of the skull was subjected to crushing violence. There was extensive epidural clot, large subdural clot which filled the right inferior occipital fossa, and a firm cortical clot beneath the seat of fracture surrounded by an inflammatory exudation. The surface of the posterior part of the right occipital lobe was softened and the seat of minute extravasations. There were small lacerations of the inferior surface of both frontal lobes, and one of considerable size in the right cerebellum, beneath the thickest part of the subdural extravasation. The wall of the posterior part of the superior longitudinal sinus was infiltrated with blood, and the cavity occupied by a thrombus. A second large and partially decomposed thrombus was situated in the torcular Herophili, and extended through the right lateral and petrosal sinuses into the jugular vein. In the second case a simple fissure extended from the right parietal bone into the posterior fossa, terminating in the jugular foramen. There was slight epidural and considerable subdural hæmorrhage at the origin of the fracture. There were several lacerations in the anterior part of the brain, and on the left side the interior of the temporo-sphenoidal and that of the frontal lobe were excavated and distended by a clot from a hæmorrhage, which had also broken through into the lateral ventricles and occipital lobes and filled them with fluid blood. There was cortical hæmorrhage at the base, which had surrounded the optic chiasm and extended to the anterior border of the pons. The thrombus occupied the torcular Herophili and extended through the lateral and petrosal sinuses into the jugular vein. In the third and final case there was no fracture, intracranial hæmorrhage, or laceration. There was, however, general contusion, with moderate œdema and distention of the minute cerebral vessels with coagula. This condition extended to the corpora striata, optic thalami, pons, and cerebellum, and was most pronounced at the base and upon the left side. The thrombus was decolorized, and occupied both lateral and both petrosal sinuses. It extended into the right jugular vein, and was colored only near the torcular Herophili. I have detailed all the accompanying lesions, though I do not believe that they were all related to the formation of the thrombi. In the first case the infiltration of the wall of the sinus points to its laceration by direct violence as the first step toward the coagulation of its contents. The portion of the sinus in which it began was, moreover, directly beneath the point at which sufficient violence was inflicted to comminute the skull, to rupture its membranes, and to cause localized inflammation in connection with the hæmorrhage. The surrounding inflammation might, at first sight, suggest an inflammatory origin, but the absence of inflammatory products in the sinus wall corroborates the view I have taken. It is more difficult to account for the thrombus in the second case. There is no positive evidence, but a possible clew exists in the termination of the fissure in the jugular foramen. It may be that some injury done to the vein led to the beginning of thrombosis at this point. It had no evident relation to the other intracranial lesions which can aid in solving the problem. In the third case the thrombus was the only localized le-

sion, and again a different and conjectural explanation must be sought. There was general contusion and general thrombosis of the minute cerebral veins. It is impossible to assume either that venous canals of such size should have primarily participated in the effect of a general contusion, or that the obstructing coagula should have extended secondarily into the sinuses. It might more naturally be assumed that the thrombus, which was already decolorized, was an antecedent lesion which had led to the venous obstruction and œdema of the brain tissue. There was, however, no indication of previous disease, and the man was at his work when struck down by the blow which caused his death. These cases are pathologically independent of each other, and may have no significance in symptomatology or treatment. In another case I suspected thrombosis of the internal jugular vein, on account of an œdema of one side of the face and neck, but his recovery precluded a confirmation of my suspicion.

I am unacquainted with any similar instances of traumatic thrombosis of these sinuses. They were unconnected with pressure or any inflammatory process within or without their walls, or with any dyscrasia of the patient. In the first and second cases I have been able to suggest an explanation; in the third case I am still without definite opinion.

#### LACERATIONS.

Lacerations and contusions of the brain are unquestionably first in frequency and importance among all the injuries of the head. They play a part in all fatal cases, and dominate the symptoms in almost all cases of recovery. Even when death is the immediate result of hæmorrhage or inflammation, or when, though life be saved, the mind is lost, they still ride behind. In every fatal case, with fracture or without, where necropsy has been permitted, one at least of these lesions has been found to exist. In every one in which necropsy has been denied, as well as in every case of recovery, the interpretation of symptoms in the light of what has been disclosed by previous post-mortem examination has pointed to the same conditions. They do not occur, however, with equal frequency. While in fifty-eight cases there were forty-eight with lacerations, there were but thirty with marked contusions; or, differently estimated, there were twenty-eight cases of laceration without noticeable contusion, and but ten of contusion without laceration. The lacerations may be single or multiple; they may be confined to the cortex, or extend a variable distance into the subcortical structure; they may originate subcortically and completely disintegrate the interior of a lobe without encroaching upon the cortex, or they may reach the pia; they may lacerate the pia and rupture the arachnoid, with or without diffusion of hæmorrhage, or the membranes may remain intact. In a large proportion of cases the laceration will be with well marked diffusion of hæmorrhage. Topographically, there is no lobe or convolution which may not be wounded. It will be seen from the necropsies recorded that the base of the brain, especially upon the frontal and temporo-sphenoidal lobes, suffers most seriously and most frequently, and that the interior of the frontal lobes is oftentimes the site of extensive destruction.



Several cases will be noted in which the hæmorrhage from a lacerated frontal lobe has broken through the lateral ventricles into the posterior regions of the brain. I present a specimen of small laceration in almost the exact center of the cerebellum (Case XXXIV). I have no record of laceration of the optic thalami, fornix, velum interpositum, or corpus callosum, though such injuries have been described. I also present a specimen of laceration of the pons (Case XXVI). Instances of laceration of the corpora striata and gyrus fornicatus are included in the series (Cases XX, XXIX, XXX, XXXV). The general appearances of these lacerations have been noted by previous writers under the name of contusions, and they require but cursory mention. As they present themselves in the cortex, they are simply lacerated wounds containing more or less coagulum with underlying shreds and granular detritus of brain tissue. After the removal of the coagulum the bottom of the wound is usually pulsatous, and stained with blood or of a grayish color. Sometimes the peripheral brain tissue is softened and dotted with miliary extravasations, and sometimes it is of normal consistence and appearance. It is rarely the case that there is not some resulting hæmorrhage which infiltrates the pia, perhaps trivial in amount, perhaps sufficient to thickly cover the base or vertex and the lateral aspects of the brain. The wound may be circular, oval, or irregular in outline, not larger than a pea, or covering the whole extent of the inferior surface of the temporo-sphenoidal lobe. In case of subcortical laceration the lesion may be a simple extravasation of blood into the deeper brain tissue, as small as in the specimens from the pons and central cerebellum which I have just exhibited, and either as harmless as it is trivial in extent or of deadly import. In another instance, as in more than one of the necrologies which I have just recorded, the whole internal structure of both frontal lobes may be disintegrated and destroyed; and when the clot and mangled brain have been turned out, nothing but the cortical shell remains.

The subsequent changes which these wounds undergo are not numerous. If of considerable size, death ensues in the majority of cases before sufficient time has elapsed to permit any change of importance. The end to be hoped for, as in any wound with loss of tissue, is cicatrization. In an experience in the dead-house lasting over many years, it has not been my fortune to meet with an instance of such reparative process, yet I have seen many cases of recovery where I am positive laceration had existed. There is a remarkable illustrative specimen in the Museum of St. George's Hospital, quoted by Mr. Hewitt, in which two large lacerations of the cerebrum, occurring without fracture, had cicatrized after many years. The cerebral surface was excavated and the pia and arachnoid were carried over the depression, leaving a cavity filled with loose areolar tissue and serum. The man's intellect had been clear, and he had suffered no cerebral symptoms.

If the patient survives, the process of reparation is evidently slow. In certain cases in which old lacerations were discovered after death from more recent injury, there was no contraction of the wounds and no inflammatory changes of importance had begun. The edges of the wounds were

slightly rounded, and the coagula which they contained were softened and their color had become rusty or yellow.

In necropsic cases of recent laceration an interval of from a few moments to one day, or several, has probably elapsed. The appearances are practically the same whatever the interval may have been. There is no tendency to meningeal or visceral inflammation in any cases which I have observed, with the exception of the occasional formation of abscess from subcortical laceration. As in the case of general contusion, with profuse oedema and death after fifteen days, no inflammatory changes have been discovered even upon careful microscopical examination. In an exceptional case (Case VII) the temporo-sphenoidal lobe had been seriously lacerated, and after the lapse of six months was the seat of interstitial inflammation and atrophy.

#### CONTUSION.

Contusion may be regarded as occurring in three forms—general and limited, affecting the brain, and meningeal, involving the membranes. The limited form may be either cortical or subcortical. Any two or all three of these may coexist in the same case.

Limited contusion of the brain differs from laceration as a contusion elsewhere differs from a wound. There is no palpable solution of continuity in the brain fibers, and consequently the hæmorrhagic extravasation can only be minute in quantity and of punctate or miliary form. In reparation only absorption, not cicatrization, is required, and recovery should occur in the major and not, as in laceration, in the minor proportion of cases. It is therefore less frequently met with in post-mortem observations. As in cortical or subcortical laceration, either form of limited contusion occasionally results in abscess. In the subcortical forms it may be difficult or impossible to determine which one of the two is the responsible lesion. I have very carefully described such an abscess in a case reported in the *New York Medical Journal*, March 19, 1890, and included in the present series. This abscess, which complicated fracture at the base, and two others complicating compound fracture of the vertex, comprise the small proportion of cases which represents the danger of this form of inflammation. In the case first mentioned, though fracture at the base existed and made it technically one of that class, there was also compound fracture of the vertex in connection with which the abscess was formed. So we may properly consider all the abscesses as complicating the latter form of fracture. In all three cases the dura was carefully examined at the time of accident and found to be uninjured, and after an interval of more than two weeks without the occurrence of meningeal inflammation, the abscess was developed. In each the external wound had been healthy and had nearly closed. These data seem to prove that suppurative inflammation of the brain substance is the result of primary injury of the brain itself, and not secondary to meningeal inflammation extended from the point of fracture. The time for cortical and meningeal suppurations passed with the coming of aseptic methods, and at the same time hernia cerebri practically disappeared from the field of surgery. These cases, however, show that com-

pound fractures still sustain a relation to deep abscess. It is not dependent upon the extent of the attendant laceration or contusion, for that is likely to be as great under other circumstances. It is more probably due to exposure, for, though uninjured, the dura and cortex may not be impervious to atmospheric influences. The explanation of this subcortical suppuration is, at all events, neither more nor less difficult than that of subcutaneous suppuration upon the surface of the body. The dogmatic assertion that traumatic abscess of the brain never occurs except there has been wound of the scalp or fracture of the skull is erroneous. Though the cases which I record here conform to this proposition, I am cognizant of at least two cases which do not. One was a small parietal abscess which I saw some years ago; the other an abscess of enormous size in the frontal lobe from a blow received in the ball-field, without the occurrence of superficial injury of any sort beyond moderate contusion. The latter specimen is still in the Museum of the Carnegie Laboratory. The important fact in connection with cerebral abscess at the present day is that it occurs from direct brain lesion independent of injuries of the scalp, skull, or meninges.

*General contusion* of the brain is more frequent than the limited form, but much less frequent than laceration. I am accustomed to recognize it in three post-mortem conditions: General hyperemia, with or without edema, punctate or miliary hæmorrhages, and thrombosis of the minute cerebral vessels. They occur separately or together. Examples of each are afforded by the necropsies I have described, and the appearances they present are sufficiently indicated in the enumeration of post-mortem conditions which I have made. I will only refer to two very recent cases (Cases XXXIII and XXXIV) as well-marked instances of excessive general hyperemia from general contusion accompanying laceration, and to one other (Case XXIV) in which death was due to general contusion with edema. The very moderate hyperemia which often exists in connection with other lesions I have not specially considered, though it may be of serious importance.

*Meningeal contusion*, as a distinct complication, occasions hæmorrhage and inflammation. Its relation to general contusion of the brain is not closely defined. The two conditions occur together or separately, and severity of one when they are coincident is not always proportionate to that of the other. I may instance as illustrative of this uncertain relation two cases—the one of edema to which I but just now referred, in which the brain tissue was swollen and the ventricles distended with serum, while the meningeal vessels were but slightly congested and the subarachnoid spaces notably dry; the other, my single case of acute arachnitis to which I shall refer later, in which the whole subcortical tissue was very markedly hyperæmic and the smaller vessels filled with coagula. I do not regard simple meningeal hyperemia as other than a factor in the more important lesion of laceration or general contusion, with which it may happen to be associated.

Hæmorrhage is of frequent occurrence. The vessels of the pia are ruptured and the blood is effused ordinarily in a rather thin sheet over one or both hemispheres, but may

present itself in patches scattered over any part of the brain. When the hæmorrhage is more profuse and the clot thicker, it can probably be traced to its source in a cortical laceration. The coexistence of both forms of cortical hæmorrhage is not infrequent. If the fact be fully recognized that cortical hæmorrhages of traumatic origin, unconnected with cortical laceration and without fracture as well as with it, are the result of meningeal contusion, the subject will not require further comment.

*Traumatic arachnitis*, so far as these records show, does not result from direct injury transmitted through fracture of the skull, nor from an inflammatory process propagated from a cortical laceration. This complication was once supposed to be the great danger to be feared from injuries of the head, and when death ensued it was always charged with the fatal result. An examination of the fifty-eight post-mortem observations I have made discloses only seven cases in which it was possibly present, and only five in which it was positively determined. Two of these occurred in connection with fractures at the base, and the remainder in simple injuries of the brain in which no fracture existed. One of the former was an acute arachnitis; the other six were characterized by a subarachnoid serous effusion. They all negative the theory of direct violence, or of an extension of a prior inflammatory process. The acute arachnitis (Case XVIII) was localized in the right and left occipital regions, while the attendant fracture and subcortical lesion were in the parietal region of one side, and separated from it by an interval in which there was no purulent effusion. General contusion was also present. In the case of subacute arachnitis which complicated a fracture at the base (Case IV), the depressed portion of the fracture which was in the vertex was confined to the external table, the local lesion was subcortical, and there was evidence of general contusion. In the five other cases, in which there was more or less evidence of subacute arachnitis, there was no fracture at all; in three there was no laceration, but general contusion or cortical hæmorrhage from meningeal contusion; in one of the other two the subarachnoid effusion was localized on the opposite side of the brain from the site of the laceration; and in the other and last of the series the lacerations were old and considerably antedated the immediate cause of death. There can be no doubt that all of these were the result of meningeal contusion.

*Paralysis*.—Another complication which has been supposed to be a direct result of fracture is paralysis from bony compression of the cranial nerves. This condition is represented in a single case. In this there was compression of the optic nerve. There was fracture extending through both anterior fossæ, involving the left optic foramen, and pinching the optic nerve at that point (Case LIX). Loss of sight was immediate, and ophthalmic examination showed the condition of the nerve and eye to be normal. Subsequent examinations discovered progressive atrophy. The patient recovered, but loss of sight was permanent. In other cases in which loss of function occurred in parts to which cranial nerves are distributed, as elucidated by post-mortem examination, the cause was found to exist in

lesion of the cortical centers or in compression of the nerve by blood effused into its intra-osseous canal of exit. There is so little displacement in fracture of the base that such instances as the one detailed are probably of great infrequency.

#### CONTRE-COUP.

I have called attention to the fact that fractures are usually the result of direct violence, expending its force upon the vertex or transmitted in continuity to the base, and that fractures by *contre-coup* are exceptional. Lacerations and contusions of the brain, on the contrary, are almost invariably produced, either wholly or in part, in this way. In the minority of cases in which some encephalic lesion exists directly beneath the point at which violence has been inflicted, there has usually been further and more serious damage done to the brain in some distant part. There has been either laceration or general contusion discovered in each case subjected to post-mortem examination. If the cases of gunshot laceration are excluded, and also those of general contusion in which a question might arise as to the kind of violence to which the lesion should be ascribed, there are only five instances in which the violence inflicted was exclusively direct. It is almost safe, therefore, to assume in any given case that if a lesion of the brain exists, it has been produced by *contre-coup* at a distance from the seat of direct injury. A careful examination of the cases cited shows this distant point to be almost always upon the opposite side of the brain, and confirms all previous observations that it is likely to be at the base in the middle or anterior lobe. The reasons which have been adduced to explain the frequent occurrence of brain injury by *contre-coup* and its seat by preference have no relation to these necropsies and need not engage our consideration.

#### CONCUSSION AND COMPRESSION.

All traumatisms involving brain symptoms were for many years classified as cases of concussion or compression. The classification was undoubtedly simple and of easy comprehension. If the intracranial space was diminished by the intrusion of bone, serum, extravasated blood, or pus, it was compression. Otherwise all symptoms were referred to a hypothetical vibration of the brain within the skull, a merely functional disorder produced by violence. Twenty years ago Mr. Prescott Hewitt described several forms of contusion, in which he included lacerations, and questioned the occurrence of concussion as a distinctively pathological condition without the existence of anatomical change. Previous to this time several observers had noted structural changes in certain fatal cases, but had not regarded them as either necessary or invariable. Some years later von Bergmann, in a clinical lecture, admitted the existence of both concussion and compression, with an ætiological difference, and insisted upon their clinical identity. He attributed concussion to a direct injury from a single impulse, modified by the elasticity of the skull, by which the brain suffered a diffuse disturbance of nutrition without appreciable lesion. He considered it a suspension of cortical activity followed by a stimulation, and eventually by a depression of the

medulla. He recognized it as occurring in three degrees: 1. Involving paralysis of the cortex only. 2. Paralysis of the cortex and stimulation of the medulla. 3. Paralysis of both cortex and medulla, with brief and unobserved medullary stimulation. Cortical paralysis was indicated by unconsciousness; medullary stimulation by slowness of pulse and increase of arterial tension; and medullary paralysis by rapidity of pulse and decreased arterial tension. In compression, he regarded the brain condition as being identically the same, and as manifested by the same symptoms, but due to change of cranial capacity and not, as in concussion, to change of cranial form. Finally, he considered diagnosis as only possible by the duration of the symptoms. This clinical lecture was admirably translated by Dr. John C. Schapps, late house surgeon at St. Vincent's Hospital, and appeared in the *Annals of Surgery* in 1882. The views of von Bergmann, of which I have presented a *résumé*, are of great weight and authority, and probably represent the cumulation of thought and observation up to that time. I do not know that very much of importance has been added since. I am quite in accord with his opinion that concussion and compression should be regarded as one, but would go further, and, having consolidated the two, would abolish them both together, so far as they are terms used to express a pathological condition. The difficulty with all explanations of concussion is that, of necessity, they are largely theoretical. To account conclusively for unseen pathological changes, or to authoritatively deny their existence, requires that the syllogism be very carefully constructed. In this instance, in every fatal case where the clinical history has corresponded to that of recovering cases a carefully conducted necropsy has revealed organic lesion. In all cases that have been cited to prove that no post-mortem lesion exists not one has been observed with sufficient exactitude to make it of the slightest statistical value. There is nothing in analogy to warrant at the present time the assumption that any fatal disorder terminates without involving structural change. Even disorders of the nervous system, long considered functional, have with closer investigation fallen more and more into line with organic diseases. It is tenable ground, therefore, to hold from both negative and positive post-mortem observation, as well as from general analogy, that brain injury produces structural change with the same certainty that it occasions palpable symptoms. If the terms concussion and compression be used to indicate a group of symptoms, or a variation of pathological condition, it is objectionable, both on the score of propriety and as being likely to lead to erroneous diagnosis. If they be discarded, the form of injury the patient has suffered in a given case—as laceration, general contusion, or fracture with hemorrhage—is more likely to be accurately determined than if attention be directed solely to a symptomatic condition that may not clearly exist. If unconsciousness and variation of pulse be accepted as the sole pathognomonic and invariable conditions of traumatism, there will still remain many cases of uncertain status. Examples may be cited from the foregoing necrologies in which, from the earliest moment at which the patient could be reached, there was neither unconscious-



ness nor a typical variation of pulse. There can be no doubt, however, that unconsciousness is one of the earliest and most constant symptoms of serious brain injury. The opinion that consciousness resides in the cortex as a whole, and that unconsciousness is paralytic or inhibitory, is confirmed by the negative results of physiological experiment and by the artificial production of cerebral anæmia. It may properly be regarded, therefore, as symptomatic of brain injury with diffuse effect, but not necessarily of diffuse injury. The primary retardation and subsequent acceleration of the pulse which have been experimentally proved to be attributable to medullary lesion are not as constant, and consequently of less symptomatic importance. In a majority of cases, at the first moment assistance can be rendered, the pulse is accelerated as it would be in serious injury of other parts of the body. The ambulance service is exceedingly rapid, so that if the retardation of the pulse is so evanescent as a symptom, it has no great practical diagnostic value.

The temperature, which has not heretofore received attention as an important factor in the genesis of symptoms or in the diagnosis and prognosis of brain injuries, seems to me of primary importance.

Analysis of the temperatures which have been recorded in these histories confirms the impression which I formed early in my study of these cases—that an elevation of temperature was an early, continuous, and very constant symptom in all classes of head injury. I have a record of temperatures in 45 cases in which the diagnosis was confirmed by necropsy as well as in 10 other fatal cases and in 28 cases of recovery, a total of 83 out of 124 altogether. I think there can be no doubt of the propriety of including the cases of death without necropsy and the recoveries, since the diagnosis was in each well established. I have a definite recollection that in a considerable number of other cases in which the temperature was carefully observed and recorded, but in which the charts were unfortunately lost, that the averages were not essentially different.

Four cases, which proved to be fatal, were admitted with subnormal temperatures—from  $94^{\circ}$  to  $98^{\circ}$ . In two a subsequent rise in temperature was immediate, continuous, and very considerable; in the other two death ensued in a few hours without reaction—in all the pulse indicated medullary paralysis, and the lesions were afterward found to be extensive and severe. In six other cases the patient was not admitted to a surgical ward till the second day or later after the reception of the injury, so that the first temperature taken could not be considered primary, but in each case it was then notably elevated—from  $101^{\circ}$  to  $104.8^{\circ}$ . In one recovering case of fracture of the base with epidural hæmorrhage it was normal, and never exceeded  $99^{\circ}$ . In the remaining seventy-two cases, without exception, the temperature on admission was above normal. In the majority it exceeded  $100^{\circ}$ , and ranged all the way from  $98.8^{\circ}$  to  $106^{\circ}$ . It would be difficult to trace a relationship between the character or location of the lesion and the comparative elevation of temperature. The increase was usually progressive, without much recession, and the maximum was reached just before death and sometimes after-

ward. The highest temperatures attained were  $109^{\circ}$  in one case,  $108^{\circ}$  in one,  $107^{\circ}$  in eight,  $106^{\circ}$  in ten, and  $105^{\circ}$  in nine, or in twenty-eight cases it was above  $105^{\circ}$ . In eleven other cases it ranged from  $104^{\circ}$  to  $103^{\circ}$ +. In three cases the post-mortem temperature was  $108.8^{\circ}$ ,  $109^{\circ}$ ,  $109.4^{\circ}$ . Sufficient data have been given to show that in probably no condition, except insolation, is the temperature so uniformly high as in cases of encephalic lesion.

Unconsciousness as an early symptom sometimes fails without apparent explanation in cases in which brain injury is undoubted. A variation of temperature, therefore, is the one invariable symptom, and if the patient has rallied from immediate shock, it is always an elevation. Perhaps, like the retardation of the pulse, depression of temperature may always be the primary change, but, if so, like the primary pulse change, it is too evanescent to be practically diagnostic. In many trivial head injuries elevation of temperature is absolutely the only symptom ever recognized. The symptoms should be rated in order of constancy, elevation of temperature, unconsciousness, and acceleration of pulse.

Since this elevation of temperature is a constant phenomenon, whatever the nature of the lesion or wherever situated, it would seem to be due to an affection of the cortex as a whole, and not to special lesions of localized heat centers. To this extent it might be comparable to experimental results in the attempt to discover cortical centers for organic functions. To what degree and in what manner the demonstrated heat centers are implicated in the general cortical change is not within the scope of this paper to discuss, nor within my province or competency to determine.

The primary effect of brain injuries may therefore still be attributed to an affection of the cortex in its totality, in accordance with von Bergmann's view, but manifested by two symptoms in place of one—an invariable variation in temperature and a nearly invariable loss of consciousness. There is no reason to doubt that the medulla is next involved, and the effect of its stimulation and subsequent paralysis have been too thoroughly demonstrated to admit of question. The diagnostic value of the symptoms it affords, however, has not been apparent in these histories. I have not quoted the pulse records, because they have not been sufficiently characteristic to justify the necessary expenditure of time and labor.

The post-mortem observations disclose in every instance gross lesions in one or more regions of the brain or its membranes, which give a material basis for the symptoms which preceded death, whatever may have been the intervening processes which connected the structural change with its outward manifestations. It is for this reason that I would exclude the terms concussion and compression from systems of classification and descriptive histories of cases.

#### SYMPTOMATOLOGY.

The symptoms of injuries of the head, excluding those which are casual and without diagnostic significance, are fairly numerous. Fracture at the base has two symptoms peculiar to itself, and fracture of the vertex has also two;

the others are common to both forms of fracture and to purely encephalic injuries. Those peculiar to fracture at the base are serous discharges from the ears or nose, and hæmorrhages from the ears, nose, or mouth, and into the orbital, subconjunctival, or cervical subcutaneous tissue. The characteristic symptom of fracture of the vertex, aside from a possible local serous discharge, lies in its perception by sight or touch. The symptoms of encephalic injuries, as a class, whether they occur independently or as complications of fracture, are superficial injuries; peculiarities of temperature, pulse, and respiration; unconsciousness; delirium; irritability; paralysis; muscular rigidity; convulsions; anæsthesia and hyperæsthesia; pupillary changes; and, in a late stage, dementia. Other symptoms, as cephalalgia, vomiting, vertigo, incontinence of urine and feces, are frequent, but of lesser clinical value.

The hæmorrhages, serous discharges, and visual or tactile detection of fracture are pathognomonic. The hæmorrhages occurred in twenty cases and the serous discharge in one, and the necropsy in each confirmed the indication the symptom had afforded. In the fourteen cases in which they were absent, the line of fracture in each was found to be such as to preclude the escape of blood during life through any of the recognized channels. The direct evidence of fractured vertex was present in five cases, including three of gunshot wound.

There were simple contusions, large hæmatoma, or wounds, perceptible in fifty out of the fifty-eight cases. These superficial injuries were of great importance, not only by affording positive proof that violence had been suffered in cases where unconsciousness of the patient and absence of history rendered such confirmation essential, but by indicating the point at which it had been inflicted.

Sufficient has been said of variations of pulse and temperature and of unconsciousness, and little need be added in regard to peculiarities of respiration. In the majority of cases it was simply rapid or normal, and the chart records have not been transcribed for the same reason that they were omitted in case of the pulse. It was occasionally slow, in some instances not more than seven or eight in the minute, sometimes irregular or stertorous, sometimes of the Cheyne-Stokes variety, and in two or three instances dependent in character upon the presence of pulmonary œdema. As in case of the pulse symptoms, I have been struck by the habitual absence of distinctive respiratory indications of medullary implication in serious cortical disturbances.

Delirium, or some form of mental impairment, is of rather frequent occurrence. It sometimes replaces unconsciousness as the earliest noticeable symptom, and sometimes appears as a much later manifestation. It may be violent and simulate alcoholic mania, or it may be mild and coexist with stupor. The most characteristic form of mental disorder which I have encountered in cases of head injury is that of nocturnal delirium, with more or less mental disturbance by day, and in time lapsing into permanent dementia as a termination, or sequel, of the traumatic lesion. It may follow at once upon recovery of consciousness, or it may succeed active delirium. At night the patient often

requires mechanical restraint, while during the day he answers questions intelligently, is coherent in his speech, and may appear entirely rational. His memory, however, is defective, or wanting altogether, in regard to all the circumstances attending his injury. He has delusions and fails to recognize his surroundings. He is prone to drink his urine, and is often apathetic. His mind may finally become clear, his memory of lost events return, and his mental recovery be complete. In other cases his condition becomes one of dementia and some degree of mental impairment is permanent. Such a condition as I have described I presume is not novel to the alienist, but I note it as a special characteristic of injuries of the brain substance, not as a sequel, but as a symptomatic condition of recent lesion.

Another allied symptom is the sensitiveness to external irritations in cortical lesions. It seems to be not only a hyperanæsthesia of the cutaneous surfaces, but also a marked mental irritability. There is not only exaggerated muscular movement from slight irritations and disturbances, but the patient manifests great vexation and impatience, though apparently unconscious. It is not usually followed by muscular spasm.

Convulsions, muscular rigidity, and muscular tremor may also be classed as irritative symptoms. The first and second occur in a considerable number of cases, a majority of which prove fatal, and upon necropsic examination disclose hæmorrhages and extensive lacerations and possibly general contusion. In the case of atrophy of the temporo-sphenoidal lobe, already described, convulsions were exceedingly severe; but they followed operation, and a single one occurred fifteen days after the original injury, so that it is by no means certain that there was any ætiological connection between the lesion and the symptom. It is fair to assume that they are always evidence of serious lesion, even when recovery follows. The few instances of muscular tremor were in men addicted to drink, but not intoxicated, and who died from the effects of extensive structural changes.

Paralysis and anæsthesia, general and local, are recognized indications of traumatic, not less than of idiopathic, affections of the encephalon. In the present series of cases they have occurred perhaps oftener than indicated in the histories, since in so many instances consciousness never returned. In this condition paralysis of the extremities and certain of the local paralyses—facial, ocular, or even glosso-pharyngeal—can be recognized; but many others, as well as sensory disturbances, remain hidden. The multiplicity of lesions, which is the rule rather than the exception, is confusing. In testing cutaneous sensibility the results are sufficiently contradictory and unsatisfactory even under more favorable conditions. Yet, despite all these difficulties, in two cases of lesion of the gyrus fornicatus the observations were productive of some result. In three cases of conjugate deviation, the necropsies afforded more or less satisfaction according to the view taken of the location of the cerebral center. In a general way, however, while traumatism may in some instances be of service in the solution of various unsettled questions in cerebral localization, such cases will probably continue to be exceptional.

The fact that defined lacerations are so largely situated at the base of the brain, out of the region in which functional areas have been located, still further diminishes the chances that traumatism will aid much in perfecting cerebral topography. It is none the less important, in all cases of profound unconsciousness, to examine critically for such forms of paralysis as are undoubtedly recognizable as well as for those the discovery of which is likely to be more problematical.

Pupillary changes are valuable positive evidence of organic injuries, but are less important as negative signs. In a minority of fatal, as well as of recovering cases, I have found the pupils to be abnormal, either variable, unsymmetrical, dilated, or contracted. Unilateral dilatation is probably the most frequent deviation from the normal condition, and is likely to be associated with other and more decisive symptoms.

I shall not stop to consider casual or remote general symptoms, though, in connection with others more characteristic, they sometimes acquire a value which is not intrinsic. Vomiting and incontinence of urine and feces are among the most constant symptoms encountered in head injuries; but the one is not less frequent in peritonitis and pregnancy, and the other is quite as common in a great variety of functional and organic disorders of the brain which have no relation to traumatism. There can be no doubt, however, of the value of such indications when they occur under circumstances which render traumatism probable, either by the history or by the concurrence of more directly suggestive symptoms. In the same connection occipital headache might be mentioned as so general in recovering cases of fracture of the base with epidural hæmorrhage as to assume almost diagnostic importance.

I have not specifically noted in the various cases the symptoms which were not manifested, but with the exception of temperatures, when unmentioned, they may be regarded as absent.

The results of head injuries have been sufficiently indicated as recovery, death, and dementia.

#### DIAGNOSIS.

The diagnosis of injuries of the head as a class is always of interest, is usually practicable, and under some circumstances is one of the most important in the domain of surgery. Grievous error has entailed equal disgrace upon the surgeon and suffering upon the patient. These lesions are first to be distinguished from all other morbid conditions, especially from those involving loss of consciousness or delirium, and, secondly, they are to be discriminated from each other. It is unnecessary to enumerate or consider all those diseases which may simulate their symptoms. The one of primary and paramount importance, and which demands most earnest and careful attention, is the coma produced by alcohol. Its importance can not be overestimated, not only because it is the one with which the condition of traumatic coma is most likely to be confounded, but because error in diagnosis inflicts so much unnecessary suffering, additional danger, and possible disgrace upon the patient, while it places the most serious re-

sponsibility upon the surgeon. The number of instances in which injuries of the brain have been mistaken for alcoholic coma and the patient left to die in the cells of a police station, or committed to the alcoholic ward at Bellevue, or even sent from a police court to a term of imprisonment, is inexcusably great. A large proportion of such cases which came into my service at Bellevue, previous to the past year, were transferred from the alcoholic ward. It is a pleasure to acknowledge that within the year great progress has been made in the acquisition of knowledge among those who render first aid to the injured, even to the extent of realizing that an unconscious man with a scalp wound is not necessarily drunk, and that even a drunken man may be so seriously injured as to require hospital treatment. Unconsciousness and the existence of superficial injury of the head should in any case arrest attention and awaken suspicion of brain lesion. Coma ought not to be ascribed to alcohol, except by the strictest process of exclusion. Symptoms which are most likely to characterize different forms of head injury should be sought *seriatim*. It should be remembered, finally, that, even if the patient be intoxicated, this circumstance should strengthen rather than allay suspicion of traumatism. I believe the temperature affords the means of absolute diagnosis. I have shown, from the histories I have recorded and upon which this paper is founded, that variation of temperature in head injuries is invariable, and that in the exceptional instances in which it is depressed the severity of associated symptoms will take them out of the category of doubtful cases. In alcoholic coma the temperature is subnormal, and I have found this rule to be absolute. The one case which seemed to be exceptional was reported to me as having a temperature of 100°. Investigation proved it to be the result of *petit mal* from opium smoking in a young prostitute of the Chinese quarter who had not yet become accustomed to her mode of life. I have made some observations to determine the exact temperature in alcoholic coma. I have succeeded in obtaining upward of twenty cases in which coma was more or less profound, and the temperature ranged from 96° to 98°, with a usually full and slow or normal pulse, and the depression of temperature was directly proportionate to the depth of coma. I had expected at the present time to have collected a larger number of cases, but I have found my opportunities unexpectedly limited. Whether it be the quality of whisky or the moral tone of the lower stratum of society which has improved I know not, but examples are no longer to be had for the asking. I believe, however, the absolutely uniform results in this number of cases makes it more than probable that a larger number in the future will corroborate the conclusion which has been reached.

In the diagnosis of apoplexy or non-traumatic cranial hæmorrhage, I have found that the observations of Bourneville coincide with those more recently made. They show that in the commencement of the attack the temperature is subnormal, that it then becomes normal, and remains at that point if the patient recovers, but if he dies it rises to a marked degree. In twenty-three cases taken from an accessible record, of which seven proved fatal, the tempera-



ture in two of the latter rose to 102° and 104°; in all the others, fatalities included, the highest temperature was 100°+. This is in marked contrast to traumatic lesions in which the temperature continues to rise from the depression, if one existed, and remains elevated while the result remains in abeyance. A case which suggests the occasional difficulty in the diagnosis of idiopathic from traumatic lesion is that (Case CVIII) of the man previously quoted who was seized with an apoplectic effusion into his lateral ventricles and one occipital lobe, and fell from his cab, causing a cerebellar laceration. There is still another in this series very like it, in which a man after an apoplectic seizure fell backward, and, like the first, lacerated his cerebellum. In both cases the previous history was known and it was possible to diagnosticate both lesions.

It is unnecessary to refer to uræmic coma, opium narcosis, hysteria, etc., as the diagnostic problems they present are elementary.

The active delirium which may occur in the period immediately succeeding the reception of a brain injury is sometimes very difficult to distinguish from that which results from alcoholic excess. The difficulty may be further increased by the fact that the subject is of known intemperate habits, and very likely intoxicated when first brought under observation. In those cases in which delirium is the first symptom noted, and probably replaces unconsciousness (as in Case I), the condition becomes very deceptive. In this instance we are not aided by the temperature, which is almost always elevated in alcoholic delirium, and elevation may be and often is very great. I have within a few days seen a case in which, with quite extensive superficial injury of the head, there was alcoholism to the verge of delirium, a high temperature, a previous history of epilepsy, and present epileptiform convulsions followed by facial paralysis. The diagnosis, which excluded brain injury and which proved to be correct, was made from observation of the course of the temperature for the first few hours. I am aware of no single diagnostic sign upon which dependence can be placed, and yet I have never seen a case in which it was not possible to make the distinction between the two forms of mental disturbance. There are few head injuries in which there are not at least one or two characteristic symptoms which can be detected if sufficient care be exercised in the examination of the case. It seems to me that there are differences even in the character of the delirium which may be recognized though not easily formulated.

The diagnosis from each other of the several injuries which may be inflicted upon the cranium and its contents is fraught with difficulties. The lesions are likely to be multiple and the symptoms to be equally referable to either one of their number; the symptoms of circumscribed lesion are often lost in those from one of a diffuse character, and similar results constantly ensue from totally different causes. A more exhaustive study of the diagnostic value of individual symptoms in their relation to each other, and to established structural changes, is therefore requisite than I have yet been able to undertake. There are, however, well-established facts, as well as strong diagnostic probabilities, which

are likely to multiply and to make diagnosis possible in an increasing number of cases. Thus, it is well known that certain hemorrhages positively indicate a definite fracture at the base. A trivial injury of the vertex and one or two general symptoms may suggest its whole extent and complications. Again, paralysis of an extremity in a recent head injury will positively determine some lesion of a definite portion of the parietal cortex on the opposite side. In the absence of depressed fracture, and with the knowledge that occurrence of laceration or limited contusion at this point is unusual, the ascription of the paralysis to hemorrhage becomes justifiable. These conclusions are legitimate and founded upon positive knowledge and logical inference combined. There can be no doubt, I think, that greater diagnostic significance will attach to individual symptoms in the light of further pathological observation. As an example, the present series of necrologies seem to show that the peculiar mental conditions I have described are usually preceded by lesion of the brain tissue, and if it be of the membranes, that it is meningeal contusion with inflammation. I have insisted upon the importance of temperature in the recognition of head injuries as a class. I am not at present prepared to raise the question of its diagnostic relation to individual lesions.

#### PROGNOSIS.

The prognosis may be first considered from the numerical results. The total number of cases is one hundred and twenty-four, of which forty-nine ended in recovery, or nearly forty per cent. The fractures at the base number seventy, of which twenty-one ended in recovery, or exactly thirty per cent.

The popular belief, and possibly the general professional impression, is that this fracture is a peculiarly fatal accident. I have already expressed the opinion that fracture at the base is devoid of danger except for its complications, but it is so often attended with grave lesions of the brain and meninges that it is not strange that by a species of metonymy it should come to stand for the traumatism as a whole.

It is difficult to estimate the comparative danger of the several lesions, from the fact that they are so generally multiple, and all together conspire to bring about the fatal result. It is also true that the severity rather than the form of lesion is to be made the basis of prognosis. It may be, therefore, of no great practical importance to attempt to infer from the necropsies the relative responsibility of individual lesions in causing death in each instance. So far as I may judge from comparisons of symptomatology with post-mortem appearances, when opportunity has been afforded, I believe death has directly resulted in fully fifty per cent. from laceration and attendant hemorrhage. In the remainder it might be chargeable to epidural hemorrhage, contusion, abscess, or arachnitis, though doubtless in every case some other lesion was contributory.

The prognosis made from initial symptoms must depend upon their general severity and upon the extent to which the vital powers are implicated. It sometimes happens that the patient survives when the obvious extent of the lesion

has made recovery seem practically hopeless. A fracture through both middle and one anterior fossa, and probably both, might well put an end to hope, and yet such a case (Case LXIX) did recover. I find that none of my patients have lived in whom the temperature has risen to  $105^{\circ}$ , but in more than one that degree was approximated. I am not at all certain it might not exceed  $105^{\circ}$  consistently with recovery. A very high temperature, or disturbance of respiration at an early period, or muscular rigidity, are always calculated to excite the gravest apprehension. The late prognosis presents no difficulties, but it ceases to be of professional interest.

## TREATMENT.

I propose to confine whatever I may have to say in regard to treatment to questions of operation. I omit all reference to medication, as it involves matters of detail for which time is wanting. I premise only a brief mention of what may be properly designated adjuvants in general treatment. The necessity of shaving the head, which is conceded in cases with symptoms of marked severity, is equally existent in every case in which there seems to be a possibility of intracranial injury. It permits the discovery of diagnostic contusions which are so often disclosed only upon post-mortem examination. It relieves the brain, in some cases at least, of a superincumbent and thermogenetic weight, which is positively contraindicated and is a factor of appreciable influence. It facilitates the use of the ice cap, which in cases of high temperature and delirium is an appliance of the highest therapeutic value. I have found it so effective that I desire to emphasize its importance. I have sometimes been compelled to maintain its use for a length of time, as whenever it was discontinued the temperature again increased and delirium returned. The resort to a simple form of mechanical restraint is often requisite for the mere purpose of retaining the patient in bed. It incidentally becomes at the same time a means of quieting nervous excitement and of husbanding physical strength.

Trephining may be regarded with less apprehension by the timid since the advent of aseptic methods. Its propriety may now be decided simply in view of its probable advantage, or its more probable futility. It may be counted quite as safe as the use of the exploring needle in suspected abscess, and safer than explorative laparotomy. I should not deem it necessary to insist upon this point were it not that I am so often surprised by denials of what I had taken to be conceded facts. If, as I am informed, the temperature rises to a high degree after craniectomy or trephining in children, it is so foreign to my experience in traumatism that I am constrained to attribute it to other causes than to simple perforation of the cranium. I have often found it, on the contrary, to be followed by a depression of temperature when no result had been attained beyond the mere removal of the button of bone. The incision of the dura, or the further exploration of the brain, might be differently regarded, for while trephining, done with due regard to time and method, could hardly inure to the serious disadvantage of the patient, uncalled-for and injudicious interference with the intracranial contents might

be of positive disservice. This possibility is not a contraindication to going further after trephining, if its propriety becomes evident. In such case I have always found the temperature to rise as it does in injuries of the brain generally. In the small abscess which I incised through the angular gyrus it rose, in the sixteen hours which preceded death, from  $102.2^{\circ}$  to  $108^{\circ}$ . In the very large abscess in the frontal lobe, upon which I operated only last month, the temperature rose from  $99.2^{\circ}$  in twenty-four hours to  $102.2^{\circ}$ , and recovery is even now complete. I should expect an elevation of temperature in any case, but I should not expect any serious results from incision of the dura or brain *per se*. So far as subsequent danger or inconvenience from hernia cerebri is concerned, I may repeat a statement previously made, that in the surgery of to-day it has ceased to be an intimidation to the surgeon.

I am quite of the same mind with those surgeons who believe that this operation should be done in every depressed fracture where elevation and thorough exploration can not be otherwise accomplished. I believe with them that the absence of general symptoms does not relieve the surgeon from the responsibility of operation. This view was held by my former preceptors, the late Dr. James R. Wood and Dr. J. W. S. Gouley, at a time when to hold such opinion was almost an opprobrium. It commended itself to my judgment then as it does now. It is doubtful if such an operation has been known to do harm when it has failed to do good. It is certain that harm has come in more than one instance where, because of the absence of general symptoms, it has been neglected. It is impossible to tell in a depression of the external table of moderate or perhaps insignificant extent what more extensive comminution of the internal table may not exist. It is this possibility of even the smallest bony spicula penetrating the brain and causing serious nervous disturbance in the indefinite future that demands thorough examination of every cranial fracture. It should be held obligatory on precisely the same grounds as the examination and cleansing of a wound in the external soft parts. The observance of such precaution is free from danger; its neglect may lead to either present or future serious complications.

If the depressed fracture is simple or its existence is in doubt, there should be no hesitancy in making sufficiently free incision to determine the exact cranial condition. It is of very common occurrence that a large hematoma exists in connection with diagnostic symptoms of intracranial injury, and that there is no other means than this of acquiring knowledge which may be of vital importance. If the result is nugatory, the incision, made under aseptic conditions, will be closed by primary union. It is certainly better to have made many fruitless incisions than to have allowed a single life to be jeopardized by an undiscovered fracture.

In case the fracture proves to be a simple fissure, a different rule of conduct will obtain. The probabilities will be against the existence of depression of the inner table, and after the fissure has been traced, with or without incision, as far as practicable, or till it has become narrowed to a line, the wound should be closed. If, how-

ever, the general symptoms should indicate complication, further exploration may become proper and necessary.

The indications for trephination are wanting at the present time in the great majority of cases which involve intracranial lesion. If the existence of epidural hæmorrhage is evident and its location is accessible, the propriety of operation is unquestioned. If the existence of circumscribed lesion of the brain can be inferred from local paralyses, anæsthesia, or muscular rigidity, or from the initial symptom of convulsion, I think the propriety of operation may be assumed. In the greater number of cases, those in which only symptoms of diffuse lesion can be recognized, the use of the trephine is entirely empirical and without justification, unless undertaken for special reason. If in time lacerations at the base come to be diagnosed with reasonable certainty, it may then be proper to inquire whether their exposure by the trephine or otherwise, disinfection, and drainage would be practicable and advantageous.

The accidental result of trephination, in at least two or three cases, suggests its employment on purely medico-legal grounds. I will instance the case (Case CVIII), already quoted as an example of mixed idiopathic and traumatic lesions, of a man who fell from his cab after an apoplectic effusion and secondarily lacerated his cerebellum. He was paralyzed, anæsthetic, and absolutely unconscious. He was trephined, and a large amount of serous fluid drained away from the surface of the brain. His temperature fell in six hours from  $103.4^{\circ}$  to  $98.6^{\circ}$ . He became conscious, could articulate, spoke rationally and intelligently, and gave his name and address. At the end of fourteen hours his temperature again rose and he died. The possibilities of such a case are not less practical than dramatic. The instances I have encountered of such transient returns to consciousness have been sufficiently prosaic and unimportant. The very next, perhaps, might disclose a criminal and avenge the crime. In any one of the many homicidal assaults in which the victim is found unconscious and the assailant has escaped unknown, I believe it to be legitimate to trephine for this direct purpose. Even temporary restoration of the mental faculties might suffice the ends of justice. The prospect of success is certainly not altogether chimerical, for I have cited a case in which just such a hypothetical result was absolutely attained.

The general principles of operative interference in cranial fractures and encephalic injury may be recapitulated and formulated as follows: Incision of the scalp, trephination, incision of the dura mater, and perforation of the brain, severally or together, should have resort without fear or hesitation when indicated. Incision of the scalp and trephination are devoid of danger and are always justifiable for exploration, which in itself constitutes an indication. Incision of the dura mater and incision or perforation of the brain are more serious procedures, and should be made only when positively indicated by the general symptomatology.

I have sketched as rapidly and systematically as possible in this paper the conclusions to be derived from the series of histories and necrologies by which it is preceded.

So far as they are confirmatory of previous observations, they will have the value which attaches to independent study. If in any particular they differ from accepted teaching, the inclusion of the historical data will make it easy either to verify their truth or to refute their error.

I beg to acknowledge my indebtedness to the courtesy of my colleagues, Dr. J. W. S. Gouley and Dr. F. S. Dennis, and also to the successive house surgeons at Bellevue and St. Vincent's Hospitals, for their intelligent co-operation in the work of observation.

#### REMARKS AT THE MEETING OF THE BOARD OF MANAGERS OF THE NEW YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN,

*December 21, 1892.*

By ELLSWORTH ELIOT, A. M., M. D.,  
PRESIDENT OF THE SOCIETY.

PRINTED AT THE UNANIMOUS REQUEST OF THE BOARD.

At the jubilee of this society in April last, our secretary, Dr. Currier, gave a condensed history of its origin and usefulness. With worthy mention he spoke of its founder, Dr. Edward Delafield, whose name, on account of this and other benevolent acts, in the list of benefactors of the medical profession in our city easily leads all the rest. Nor were the labors of Dr. William Detmold forgotten, by whose wisdom the by-laws were so wisely modified that our pecuniary management was placed upon the soundest financial basis. Our secretary was not then perhaps aware of the fact that this vigilant friend of the society had, at a certain epoch in its history, the forecast to save several thousand dollars to its treasury, which should be permanently recorded. He told us of the legacies of Dr. Delafield and Dr. Beadle, to the amount of \$5,000 each; of that of Dr. Jacob Harsen, of \$10,000; of Dr. Alonzo Clark, whose legacy is estimated at \$20,000; and of several others who left smaller amounts as God gave them ability. Were it not for these legacies and the contributions made by the wealthier physicians, small indeed would be the pittance which the society could give to the widows and orphans of their less fortunate, perhaps less thrifty, brethren.

To Dr. Currier's document, prepared with much care and great labor, I am indebted for most of the statistics which I present to-night.

On October 5, 1892, our assets were \$182,546.76. During the year past we aided twelve widows and four children of deceased members, and our expenditure in the management was \$280.95.

The past history of this society is most creditable. From 1852, when relief was first given to a widow, to the year 1892, twenty-seven widows and twenty-two children have been relieved, one of the former for more than thirty years. Let me call attention to the amounts paid by members whose widows and orphans have had this inestimable advantage. One member who paid \$40 has had paid to his widow and children \$2,790. Another widow, the pay-



ment having been \$40, has received \$6,615. To another widow, the payment being \$250, \$8,652.50 has been paid. Another widow still lives to give hearty thanks for the good example of her husband, who, having contributed \$40 to the funds of the society, entitled her to relief already for more than thirty years to an amount exceeding \$10,000, and the end is not yet. May the \$400 which she annually receives so smooth her pathway to the grave that many years shall elapse before she has the opportunity of becoming an angel in heaven!

The largest amount which our by-laws now require in order to secure the advantage of this society is \$225, the payment of which may be extended for a period of twenty years. Several of our beneficiaries enjoy this privilege by the payment of less than \$50 to the treasury of the society.

As a rule, physicians leave scanty means. "Ye have the poor always with you" is as true in regard to physicians as it is of others. The large number now crowding the profession will probably result in an increase of this class. Why do not more avail themselves of the privileges of this society? If they would do so, physicians would not be asked for alms, as not infrequently happens, by their destitute widows and children.

The society has had during its existence of fifty years, as far as can be ascertained, three hundred and thirty-one members. We have now but one hundred and thirty-five, although there are not less than two or three thousand who are eligible. So far as I have learned, there is but one physician in Westchester County, and none in Richmond and Queens, who are members. Our membership is not equal to what it was ten years ago. Fortunately this is not true of our property. The annual increase has exceeded \$2,000; in one year we added more than \$6,000. The last year our increase was \$4,396.48. During the last year, under the presidency of my predecessor, Dr. Herrick, we increased the number of our members. We should not be satisfied unless we annually make some gain, though a large and rapid increase is not desirable, as it might result in a diminution of the amount we now pay to the widow and orphan. Still, all are invited to join, and none are repelled. A slight effort upon the part of each one of us would probably accomplish as much in this direction as is desirable.

Dr. Currier informed us that eighteen dinners—at one of which "the host said that he had never met so temperate a body of men"—had been successfully given in order to increase the membership and the funds. In our day it has not been deemed wise to continue them.

At the last revision of the by-laws, in 1889, it was decided that the life-membership fee should remain at \$100, as it was thought that many of the wealthy of our profession would give this amount or more in aid of those less fortunate; and in almost every instance a request to join as an act of charity has so commended itself to their approval as to receive prompt acquiescence; in one instance with a note of hearty thanks for the privilege. I am sure that many others, if their attention were properly called to the subject, would do likewise. They could be assured that more than ninety-nine cents of every dollar given would go to some destitute widow or orphan. True, we have Ishma-

elites in our profession, who, instead of becoming members of our societies and contributing to their support, waste their energy in finding fault with the management. Living, they contribute nothing to the general fund; dying, they remember those only as selfish as themselves.

The wealthy and flourishing may learn a lesson from some facts in our history. In the historical sketch of the society, printed in the 1875 edition of our by-laws, is this statement: "A member had died, leaving his widow a handsome competence. But about ten years after his death, owing to unfortunate investments, her property had all been lost, and she claimed and received aid."

I remember another instance where a bachelor joined, and made payments to the amount of \$40, little thinking it would ever be a direct benefit to him. He subsequently married, and the table prepared by Dr. Currier shows that his widow and child received \$6,337.50, and the annuity would have been continued to this day, and perhaps years longer, had not the widow received a legacy which made further relief unnecessary.

Another physician told me he joined the society to help others, as his family would have ample provision at his death. His payments amounted to \$135. His widow and children received \$5,590. He had miscalculated or misfortune overtook him.

Some of us remember a physician whose success apparently made him one of Fortune's favorites. He lived in a fashionable part of the city, drove a spanking team of horses with a liveried coachman, gave frequently elaborate entertainments, and seemed to have at command all the surroundings of a physician in a large and lucrative practice. To-night we have voted to appropriate to his widow, who makes affidavit that she has no property, \$400.

We want more legacies, more benefactors, and more life members. We should be glad to see such an increase in our assets that the penniless widow would receive \$500 annually instead of the \$400 we now allow. At first it was \$100 for the widow and \$25 for a child.

It should not be considered respectable for a wealthy physician to die without the pale of life membership; and if in their wills this society were mentioned as a legatee, it would be in harmony with the definition of "pure religion and undefiled," "to visit the fatherless and widows."

This society has always been most piously inclined to carry out the designs of its early members. They had a by-law to this effect: "In special cases the aged father, the widowed mother, or aged sister of a deceased member, who has been dependent upon said member for support, may receive assistance at the discretion of the board of managers on a three-fourths vote of the members present." When the lawyers gave their opinion that this was contrary to the charter, our standing committee were instructed to procure, if possible, such alterations as would enable us to carry into effect the intentions of our founders. The committee have reported progress, and hope at the next session of the Legislature to secure the amendments desired.

Our society has been accused of hoarding money, instead of dealing with a liberal hand, by some who, if well in-

formed, would have words of praise for our wise prudence. We have a by-law which will prevent an accumulation beyond a proper limit. We shall hail the day when we can increase the annuities, but we shall not knowingly place ourselves in a position where it will be necessary to take a step backward.

So far as I have been able to learn, ours is, with the exception of societies in Philadelphia and Massachusetts, the only one of the kind in this country. It was patterned after one in London having the same name, which was established in 1788. The experience of one hundred and one years, says one of their late reports, has fully proved the need that existed for this society. In 1888 £3,221 were distributed among sixty-two widows and thirteen orphans of deceased members—a smaller annuity to each than we grant. Like ours, it has received legacies, and in such favor is it held that members of the royal family have been its patrons.

Our society must suffer no detriment while in our keeping, and we shall not do our whole duty as a board of managers unless, after the example of our predecessors, we deliver it at the appointed time to our successors on a higher level than it now holds.

**The Cincinnati College of Medicine and Surgery.**—Dr. J. Trush has resigned the chair of theory and practice of medicine in consequence of ill health, and the vacancy thus created has been filled by the transfer of Dr. E. W. Mitchell from the chair of materia medica and therapeutics. Dr. G. A. Fackler, professor of materia medica and therapeutics at the Women's Medical College, has accepted the appointment to the vacancy created by the transfer of Dr. Mitchell. The college moved into its new building, on Vine Street, near Liberty, on January 1st. A change has been made with particular reference to the further development of the clinical department of the school.

**Medical Education in Chicago.**—"It is stated," says the *Journal of the American Medical Association*, "that both the Rush Medical College and the College of Physicians and Surgeons, of Chicago, have offered to give up their entire property to the Chicago University, and the faculties to resign unconditionally, in order that a medical department may be organized on a level with other schools in this already wonderfully well organized institution. It is stated that \$1,000,000 is in sight for the endowment of such a medical department."

**The Medical Society of the County of New York.**—The programme for the meeting of Monday evening, the 23d inst., included a paper on Cancer of the Cervix Uteri complicating Pregnancy, by Dr. Henry C. Coe; a eulogy of the late Dr. James R. Leaming, by Dr. J. Leonard Corning; and a paper entitled Practical Data in the Application of Water to some Intractable Diseases, by Dr. Simon Baruch.

**Honors to Medical Men in France.**—According to the *British Medical Journal*, M. Péan, M. Proust, and M. Dujardin-Beaumetz, of Paris, have been named commanders; M. Gayon and M. E. Raux, officers; and M. Metschnikoff, M. Netter, M. Thoinot, and M. Galliard, of Paris, M. Gimbert, of Cannes, M. Heydenreich, of Nancy, and M. Fochier, of Lyons, Knights of the Legion of Honor.

**The Medical Week.**—This is the title of an edition of the *Semaine médicale*, of Paris, printed in English. The journal consists of twelve large double-columned pages giving matter drawn from various countries and presented in far better English than we remember to have seen in any other French publication. The journal is published in Spanish also, under the title of *La Semana Médica*.

**The New Haven, Conn., Medical Association.**—The special order for the next meeting, on Wednesday evening, February 1st, is a discussion on scarlet fever.

THE  
NEW YORK MEDICAL JOURNAL,  
A Weekly Review of Medicine.

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JANUARY 28, 1893.

MEDICAL ETHICS AMONG OUR MILITARY BRETHREN.

THE code of medical ethics, as regards the relations of physicians to each other, is an admirable expansion of the principle "Do as you would be done by." It throws every safeguard around the interests of the attending physician when he is brought in contact by the bedside of his patient with his medical brethren in consultation, in emergencies or in cases of interference. The code allows nothing to be done, said, hinted at, or insinuated, or any course of conduct pursued that would, directly or indirectly, tend to diminish the trust reposed in the attending physician or affect his reputation injuriously. For one medical man to supplant another in the whole extent of his practice and oblige him to retire to a distant field would seem to be an impossibility under such a code, and yet it seems that recently such a wholesale infraction of medical ethics has been committed in one or two instances by members of the profession in the military service.

The Army Medical Department has for years taken a just pride in the purity of its constitution and administration. Since its organization vacancies have been filled by competitive examination before a board of medical officers anxious to preserve the high standing of their corps. Other officers of the army have owed their positions to influence—the congressional or other influence that sent them to the Military Academy at West Point or the stronger influence that appointed them to positions in some of the staff corps. The medical officer alone has owed his position to his own intelligence, assiduity, and ability. For years also the Medical Department of the Army has taken pride in its own integrity and adherence to the code of ethics as modified by military customs. Rank and promotion have followed appointment by virtue of years of service, irrespective of any influence possessed by family or friends. Leaves of absence and other privileges of the officer have also been independent of outside influence, and his service at desirable posts in the East or at undesirable posts in the West has been prescribed and so well understood by everybody that when an order was issued changing his station it was accepted by him and recognized by his medical brethren in and out of the service as right and just. Thus since its organization has the Army Medical Department been ruled, its officers free from the jealousies and ill-feelings generated by preferment or advantages due to political influence and looking to the department itself and its well-understood line of action for protection against any of its members who should endeavor to make use of any such influence on his own behalf.

Recently, however, the traditions of the department have been rudely shaken, so rudely as to create anxiety in the minds

of its officers lest the rule of influence should hereafter replace that of medical ethics and departmental equity. Several instances of the power of influence have occurred, and they have culminated in one of such importance as to attract the attention not only of the medical officers of the army but of the profession in civil life. Dr. Mosely, an officer of rank and standing, and justly entitled to his preferment by virtue of continued service at Western stations, was assigned as attending surgeon in Washington. The rule of the department led him to expect a stay of a certain number of years at this station, and he made arrangements for himself and his family accordingly; but before he had become well established in his new practice an order was issued replacing him by Dr. R. M. O'Reilly, whose record of service by no means entitled him to the position. Influence must have done this. Under the terms of this order Dr. Mosely would have been required to vacate his position as if he were unfit for it; he would also have been exposed to heavy pecuniary losses in effecting a new settlement. Moreover, some army medical man would have had to remain beyond his term at an undesirable station in place of his influential comrade who had succeeded in overturning the just and equitable methods of the department.

The code of ethics would make the medical man who used his influence to the detriment of another the subject of a medical court. There are of course courts in the army, but the injury to the reputation of a medical man, in which lies the gravamen of the matter under consideration, would not be recognized by them. In 1882 an officer of the adjutant-general's bureau made use of senatorial influence to have an order effecting him revoked. The gravamen of his case was that he had been indiscreet enough to protest against his order, informing his superiors that he purposed asking political assistance for its revocation. This was insubordination. Had he kept quiet and left himself "in the hands of his friends," there would have been no case against him, as there would be none against a medical officer whose friends helped him to something desirable.

There seems to be no preventive or remedy for such evils among our military brethren, unless the secretary of war can be prevailed upon to view the matter from the proper standpoint. In the case in question the secretary, "upon consideration of written and verbal communication received by him from the surgeon-general of the army bearing on the subject," has suspended the order assigning Dr. O'Reilly to duty as attending surgeon at Washington. The secretary should have done more; he should have revoked the order.

## MINOR PARAGRAPHS.

### SECRET METHODS IN MEDICINE.

In our issue for January 7th we published an article on The Radical Cure of Hernia by Hypodermic Injection, by Dr. William C. Kroman, of Baltimore. It had escaped our notice that the author did not state what preparation was used; otherwise we should not have allowed the article to appear. When our attention was called to the matter we presumed that the author,

who had before contributed unobjectionable matter to our columns, had in this instance by mere oversight omitted to give the proper information as to the nature of the substance used in the treatment that he was writing about; but we regret to say that correspondence with him has failed to elicit that information, and that we have learned from trustworthy sources that the alleged remedy in question is being managed by methods that are abhorrent to every worthy physician. Those of our readers who have followed the course of this journal closely—especially those who recall what we said when the first accounts of Koch's tuberculin were published—do not need to be told that we regard the use of secret remedies and procedures as reprehensible in the extreme, and most if not all such remedies and procedures as valueless. Nevertheless, in view of our having unwittingly published the article mentioned, we feel called upon to say specifically that we did not consciously lay before our readers an article exploiting what has turned out to be a secret procedure.

### THE AMERICAN RAILWAY SURGEON.

The *American Lancet* appears to have no very exalted opinion of the six thousand railroad surgeons who practice under contract. It says of them that they seem to be content to "work for nothing and board themselves," and that their lowly status is their own concern. But it is pointed out as an evidence of the willingness of great and wealthy corporations of the country to fatten themselves by withholding from medical men a just return for work conscientiously performed. What compensation these gentlemen get we do not know, but at least their work is humane and, to the best of our knowledge, creditably performed.

### A URINARY INDICATION IN THE QUESTION OF OPERATING FOR EPILEPSY.

The *Union médicale* for January 5th gives a summary of an article by M. Gilles de la Tourette, published in the *Archives médicales belges*, in which, after calling attention to the frequency with which no lesion is found on trephining, owing to the difficulty of distinguishing hysterical epilepsy from epilepsy due to a neoplasm, the author states that he and M. Cathelineau have observed in M. Charcot's service that in cases of epilepsy due to a neoplasm there is always a noticeable increase of the fixed residues of urea and phosphates in the urine at the time of a paroxysm, whereas in hysterical epilepsy there is a perceptible diminution of the same elements at that time.

### THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

We are very sorry to learn that the appropriation for the purchase of books has been reduced in the Army Appropriation Bill from \$10,000 to \$6,000, also that in the Sundry Civil Appropriation Bill, as reported by the committee of appropriations to the House, the usual item for printing the next volume of the *Index Catalogue*, \$12,000 has been omitted. This action seems to be a great mistake, and we hope it will be corrected speedily; otherwise the library will suffer and the work of completing the publication of the *Index Catalogue* will have to be interrupted. The country should consider itself pledged to its completion without unnecessary delay.

### NOVEL IDEAS OF FEMININE ANATOMY.

The *Sun* lately gave an account of a military drill gone through with by nineteen young women. At the order "Charge bayonets," according to the account, "nineteen lips



were pressed firmly together, nineteen eyes flashed unknown terrors, and nineteen muskets were pointed," etc. Now, without the least intention of questioning the general truthfulness of the legend "If you see it in the *Sun* it's so," we shall need persuasion before we can believe that these nineteen young women had but one eye and one lip apiece, or that nine and a half of them pressed two lips together, flashed terror with two eyes each, and pointed each two muskets.

#### STUDIES FROM THE PATHOLOGICAL LABORATORY OF THE COLLEGE OF PHYSICIANS AND SURGEONS.

The second volume of this valuable serial, for the collegiate year 1891-1892, has just appeared. It consists of reprints of articles by Dr. T. Mitchell Prudden, Dr. Ira Van Gieson, Dr. John Winters Brannan, Dr. George C. Freeborn, Dr. Rowland Godfrey Freeman, and Dr. William Hallock Park. Five of the articles (172 pages) are reprinted from this journal, three (69 pages) from the *Medical Record*, and two (7 pages) from the *Proceedings of the New York Pathological Society*.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 24, 1895:

DISEASES.	Week ending Jan. 17.		Week ending Jan. 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	19	18	14	11
Typhoid fever.....	8	4	10	5
Scarlet fever.....	138	18	144	7
Cerebro-spinal meningitis....	2	1	3	4
Measles.....	87	13	95	7
Diphtheria.....	113	42	83	23
Small-pox.....	5	0	8	1

**The Richmond Academy of Medicine and Surgery.**—The special order for the meeting of Tuesday evening, the 24th inst., was a discussion on tubal pregnancy.

**Dr. Roberts Bartholow.**—We are glad to see the announcement, in the *Medical News* for the 21st inst., that this distinguished Philadelphia physician has been completely restored to health and resumed his practice.

**Change of Address.**—Dr. A. Ernest Gallant, to No. 35 West Fifty-third Street.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 21, 1894:*

ROTHGANGER, GEORGE, Assistant Surgeon. Ordered to the Navy Yard, Mare Island, Cal.

RIXEV, P. M., Surgeon. Ordered to the U. S. Steamer Dolphin. February 6, 1893.

GATEWOOD, J. D., Passed Assistant Surgeon. Detached from the U. S. Steamer Dolphin, and granted two months' leave from February 6, 1893.

HARRIS, H. N. T., Passed Assistant Surgeon. Assigned to special duty in the Bureau of Medicine and Surgery.

#### Society Meetings for the Coming Week:

**THURSDAY, January 31st:** Medical Society of the County of Onondaga (Semi-annual—Syracuse), N. Y.; Boston Society of Medical Sciences (private).

**WEDNESDAY, February 1st:** Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical

Society (Bangor); New Haven, Conn., Medical Association; Bridgeport, Conn., Medical Association.

**THURSDAY, February 2d:** New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

**FRIDAY, February 3d:** Practitioners' Society of New York (private); Baltimore Clinical Society.

**SATURDAY, February 4th:** Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

#### Answers to Correspondents:

**No. 391.**—Our decided impression is that no formality would be necessary in your case, but it would perhaps be well for you to communicate with the Board of Regents of the University of the State of New York, Albany.

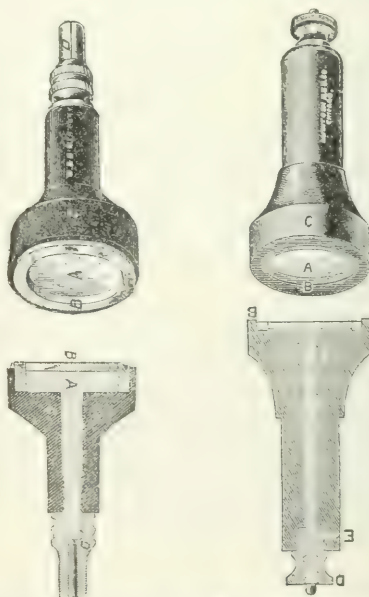
#### Letters to the Editor.

#### ANOTHER CASE OF UNCONSCIOUS CEREBRATION.

NEW YORK, January 12, 1895.

To the Editor of the *New York Medical Journal*:

SIR: In your *Journal* for November 15, 1890, I wrote a short note On a New System of Exact Dosage in the Cataphoretic Use of Drugs. I described in this a new and simple cata-



Electrode described by Dr. Peterson. *New York Medical Journal*, November 15, 1890. Not patented.

Dr. McBride's electrode, from *Gallard's Medical Journal*, August, 1892. Patented in September, 1892.

phoretic electrode which Messrs. Waite & Bartlett had made for me, the cuts of which they have now published in their annual catalogue for over two years. These cuts are here reproduced.

In *Gaillard's Medical Journal* for August, 1892, Dr. Edward H. McBride, of Springfield, Mo., has an article on a Cataphoric Electrode, in which he describes very carefully my electrode and methods, and exhibits cuts of his discovery. Dr. McBride's cuts are reproduced by the side of mine, showing that the instruments are precisely the same, and the artist in copying my electrode scarcely took pains to change the lettering on the cuts. At the same time I do not wish to imply that Dr. McBride actually appropriated my work of a year or two previous. This may be one of those cases of minds widely separated working in the same channels by telepathic influence. The doctor has, however, gone one step further than I, in that he patented his telepathically conceived cataphoric electrode at Washington in September last, and the thought of patenting it had not occurred to me at all.

FREDERICK PETERSON, M. D.

## Proceedings of Societies.

### THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of January 3, 1893.

The President, Dr. M. ALLEN STARR, in the chair.

**Oxaluria and its Relations to Certain Forms of Nervous Diseases.**—Dr. I. ADLER read a paper on this subject. He stated that the presence of oxalate-of-calcium crystals in the urine had been the subject of much discussion. Our present knowledge regarding the subject was rather unsatisfactory. There was much that was still obscure pertaining to it, and on very few of even the fundamental points had unanimity of opinion been attained. Most plants and vegetables used as food contained oxalic acid, some of them a very large percentage, and all, or nearly all, of it that was taken into the system reappeared in the urine—some perhaps in the feces. From this it appeared that oxalic acid did occur in the urine of healthy persons. On this point all authors were now agreed. It was also probable that oxalic acid might originate in the course of normal metabolic changes. The presence of oxalic acid in the urine had once been believed to be due to the incomplete oxidation of uric acid, but this theory was no longer held. The fact that uric acid could be separated into urea and oxalic acid did not prove that theory.

Oxaluria as an independent type of disease, the author said, did not exist. He then reviewed Cantani's treatise on this subject, in which that author had asserted that oxaluria was a distinct disease characterized by certain well-marked symptoms, including insomnia, loss of appetite, melancholia, suicidal tendencies, headache, constipation, sexual impotence, emaciation, etc. These symptoms, the author said, were not due to the presence of oxalic acid in the urine. To prove this fact he had had a careful quantitative analysis made of the amount of oxalic acid (also determining the amount of urea and uric acid) contained in the urine of a large number of persons suffering from various diseases, such as neurasthenia, the gouty diathesis, etc. In some of these cases the symptoms ascribed by Cantani to oxaluria had been present, but no possible relation could be traced between them and the amount of oxalic acid in the urine.

In conclusion, the author made the following statements: Oxalic acid is a normal, although possibly not a constant, constituent of the urine. The amount present in a given quantity

of urine can be determined with any degree of accuracy only by a quantitative analysis. The chief source of oxalic acid in the urine is the oxalic acid contained in the food. It is probable, however, that minute quantities are produced in the course of normal metabolism. Impeded respiration and diseases of the heart and lungs do not of themselves tend to produce an excess of oxalic acid. The existence of a pathological oxaluria *sui generis* can not be established. The nervous symptoms ascribed to pathological oxaluria are not caused by an excess of oxalic acid in the urine. Where such excess does occur, and can not be accounted for by the ingesta, it is probably one of several symptoms of metabolic changes primarily caused by alterations in the nervous or digestive system or both. In examining the urine for oxalic acid, it is of the utmost importance to consider its other ingredients as well, particularly urea and uric acid.

Dr. C. A. HERTER referred to the various methods of making a quantitative analysis of the amount of oxalic acid in the urine and the enormous labor involved. He did not agree to Dr. Adler's statement that a great many cases of so-called oxaluria were not pathological. He was not prepared to accept the proposition that there was no such thing as pathological oxaluria. He was inclined to think that in cases where there was defective digestion, especially in the intestines, the carbohydrates were likely to be transformed into oxalic acid, where normally they would not be so transformed. He did not believe, however, that oxalic acid was ever the cause of the symptoms named by Dr. Adler. Other constituents of the urine must be taken into consideration—such, for instance, as uric acid and creatinine. The latter was a substance in which even more nitrogen was excreted than in uric acid. The ethereal sulphates in the urine must also be considered. They were often present in excess of neurasthenic conditions where there was oxaluria and where there was also an excess of uric acid. The speaker was inclined to think that the old theory of the formation of oxalate of calcium out of uric acid was an exploded one.

Dr. L. WEBER said that his clinical observations were fully in accord with the ideas expressed in Dr. Adler's paper. He did not believe in the existence of a disease to be designated oxaluria, but he had met with many cases of a disordered state of the system, brought on by various causes, in which he had found (not by quantitative analysis, but by frequent and careful examination with the microscope) oxalic acid in the urine, besides in every case an increased amount of uric acid.

Dr. CHARLES HEITZMAN stated that he saw many cases of so-called oxaluria, and that the appearance of the patients was usually characteristic. Sleeplessness, indigestion, and fits of melancholia were the more common symptoms he had found in them. Contrary to Dr. Adler's experience, he had usually found the specific gravity of the urine high—from 1.024 to 1.036. Regarding the treatment, the speaker recommended a meat diet, the exclusion of sugars and farinaceous substances, and vigorous outdoor exercise. He felt convinced that there was a condition of the system wherein the amount of oxalic acid excreted by the urine was far in excess of that taken in with the food, and he could not agree to Dr. Adler's statement that there was no such thing as a really pathological oxaluria.

Dr. MARY PUTNAM JACOBI said it seemed to her that Dr. Adler's conclusion that the oxalate of calcium contained in the urine was rather an accessory product of a disordered function than a cause in producing it was very true. She referred to some experiments made by Dr. Chadwick, of Boston, in a series of cases in which the patients were operated upon on the supposition that there was a stone in the pelvis of the kidney. No

stone was found, but the symptoms disappeared. In these cases the attacks of renal colic were followed by a copious discharge of oxalate-of-calcium crystals in the urine, after which the patients remained quite free from pain for some time.

Dr. E. D. ROCKWELL said he had been much interested to note the frequency with which oxalate-of-calcium crystals had appeared in the urine in certain neurasthenic cases associated with a disordered heart's action. Such a case had recently come under his observation. A physician who suffered from neurasthenia and had frequent attacks of palpitation noticed repeatedly that this excessive heart's action was always associated with an abundance of oxalate-of-calcium crystals in the urine. The speaker had also often found them present in large quantities in spermatorrhea.

The PRESIDENT said that we could not study neurasthenic conditions carefully without coming to the conclusion that the trouble lay in the chemistry of nutrition. It was very easy to jump to the conclusion that any substance of an abnormal character in the urine or forces gave rise to a certain morbid condition, but this was a wrong conclusion. The oxalates, the urates, indican, etc., might occur in excess in the urine, but they were end-products. The statements made in Dr. Adler's paper, based on such careful quantitative analyses of the urine, should be regarded as very valuable. It was much more difficult to destroy a wrong theory than to originate a new one.

Dr. ADLER said that the local precipitation of the oxalates seemed to be independent of any positive excess excreted. Calculi, consisting of the oxalates, might form in the kidney and bladder without there being an absolute excess of the salts in the urine.

**A Case of Cystic Tumor of the Brain operated upon with Success.**—Dr. LEO STEIGLITZ showed a woman, twenty-five years of age. She had been married in April, 1891. Previous to her marriage she had always been well. There was no hereditary taint of any kind, and there was no history of traumatism or convulsions. In October, 1891, while quietly talking with her husband, she had suddenly felt twitchings in the thumb and forefinger of her right hand. The convulsive twitchings had spread rapidly, extending up to the shoulder and face, and had led finally, within the space of a few minutes, to a general seizure, with loss of consciousness, cyanosis, frothing at the mouth, and tonic and clonic convulsions. An attack similar in character to the first one had occurred seven weeks later, and been followed by a number of others. Suspicion of a localized cerebral lesion was aroused, although the patient offered absolutely no further symptoms; she had no trace of headache, nausea, giddiness, choked disc, etc. She was put upon the use of bromides, and after January 19, 1892, she had no general convulsions at all, but simply convulsive twitchings confined to the right hand and forearm and always beginning in the thumb and forefinger. These attacks occurred almost daily. Although no history of syphilis could be obtained from either the patient or her husband, she was put on antisyphilitic treatment for a time, but no improvement followed. In February a marked paresis of the right hand developed. The deep reflexes were increased, more marked on the right than on the left side. The dynamometer test showed twenty-five on the right side, fifty-five on the left. The urine contained neither albumin nor sugar. There was no temperature disturbance. There was no disorder of sensation in any part of the hand or arm, except a general feeling of numbness. The diagnosis arrived at was: organic lesion, probably a tumor, situated in the left anterior cerebral convolution. An operation was performed on the patient by Dr. Gerster on June 25th, at Mt. Sinai Hospital. A lateral opening in the skull having been made, the dura was seen to bulge but slightly into it. An area on the dura of about the

size of half a dollar showed a diffuse yellowish tinge, different from the color of the adjacent dura. The application of the poles of a small faradic battery to the unopened dura by Dr. B. Sachs promptly determined the center for the movements of the hand and fingers, and the point corresponded with the discolored area referred to. When the dura was opened, the cortex of the brain showed no apparent change. A vertical incision into its substance was followed by a gush of yellow serous fluid, none of which, unfortunately, was saved. Perhaps an ounce of fluid escaped. The walls of the cyst were found to be perfectly smooth. A small layer of gray matter was removed from the center exposed, upon the advice of Dr. Sachs, to prevent disturbances which might develop from possible secondary sclerotic changes. There was but little shock after the operation. On the day following it the patient had lost all power in her right thumb and forefinger, and could move her other fingers and the entire right arm but very slightly. This symptom gradually improved. On July 21st she had slight convulsive twitchings in her right hand, right arm, and face. On July 28th she had more violent twitchings. On August 7th the scalp wound was opened and adhesions were found between the flap of skin and the dura. Probing revealed no recurrence of fluid in the cyst. The adhesions were separated and a flexible gold plate was inserted. On August 9th there was slight twitching in the three ulnar fingers; the patient could move her fingers, hand, and arm quite extensively. Upon examination in November, it was found that she had lost the sensation of position in the fourth and fifth fingers of the right hand; she could not tell whether they were flexed or extended. The strength of her hand and arm was greatly increased. On December 10th there was considerable twitching in the right arm and in the face. The patient had been kept on doses of from fifteen to thirty grains of potassium bromide daily since the operation.

The speaker was inclined to believe that there had been a glioma at the bottom of this patient's trouble. In that case there was reason to fear a further growth of the glomatous material presumably left in the walls of the evacuated cyst. Symptoms had already developed that tended to confirm these fears. As to the further treatment, he would like to have another operation performed and the entire cyst or its remains removed, if possible.

Dr. A. G. GERSTER, who had operated on the patient, said that at the time of the operation the advisability of removing the cyst wall had been considered, and it was decided that it could not be done, on account of the delicacy and thinness of the membrane. In his opinion, it could not have been separated without tearing it into shreds. In operations on the skull he preferred the gouge and mallet to the trephine; he was not hampered by the size and shape of the trephine, and could remove as little or as much of the bone as he chose. He also referred to the profuse hæmorrhage accompanying operations upon the head and the serious difficulty the surgeon often found in checking it. Peripheral constriction by means of an elastic bandage proved inadequate. The hæmorrhage was not alone from the scalp, but from the diploic substance and the vessels that coursed through the brain itself.

The PRESIDENT said that the utility of peripheral constriction as a means of checking hæmorrhage in operations about the head had been testified to by Dr. Weir and others. The least hæmorrhage he had ever seen in such a case had been in a patient who was kept in the sitting posture during the entire course of the operation. In another case—that of a patient operated on a short time before by Dr. Briddon—chloroform had been administered instead of ether, and the amount of blood lost had been much less. Regarding the excision of the cyst wall, the



patient doubted if that was possible. Furthermore, there was probably gliomatous infiltration into the brain substance. In a brain cyst evacuated by Dr. McBurney drainage had been kept up for fifteen days, when the walls were found to be adherent and there was no cavity left. Out of eighty-seven recorded operations for the removal of brain tumor, forty-six per cent. had been successful in the finding of the tumor and in the recovery of the patient. Successful operations for the relief of epilepsy were very rare.

**Hemiatrophy of the Tongue.**—The PRESIDENT showed a woman who had been perfectly well until the preceding June, when she had suddenly been seized with pain in the back of the neck and the occiput, and the next day she had noticed that something was wrong with her tongue. It deviated decidedly to the left and had continued to do so ever since. It had become noticeably atrophied, and presented well-marked reaction of degeneration. There was no pain or disturbance of taste.

#### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Fourteenth Annual Congress, held at Boston on Monday, Tuesday, and Wednesday June 20, 21, and 22, 1892.*

The President, Dr. S. W. LANGMAD, of Boston, in the Chair.

*(Continued from page 85.)*

**The After-results of Nasal Cauterization.**—A paper on this subject was read by Dr. T. A. DE BLOIS, of Boston. (See page 96.)

Dr. J. WRIGHT, of Brooklyn: I quite agree with the author that one can tell better two years after the cauterizing operation than he can two weeks or months afterward what will be the result. There is frequently something which underlies the etiology of hypertrophic rhinitis which is more than local. A great many cases, without doubt, are due to systemic disturbance, and it seems to me that we should try milder measures before proceeding to burning, cutting, or similar heroic treatment. I always place these patients under antiscarrhal treatment (if Dr. Bosworth will allow me to use the term) for a few weeks before resorting to operative procedures. By correcting disturbance of the stomach, etc., one gets better results in vascular engorgements of the turbinated bodies. I do not know that dyspepsia produces actual hypertrophic rhinitis, but it certainly is an underlying factor in vaso-motor disturbance of the turbinated bodies. What is true of dyspepsia, I believe, is true also of rheumatism and possibly of gout. Many of these people, too, are of irritable temperament, and if their nose is in such a condition that they do not respire quite as well as usual, they notice it more than other people, and complain.

Dr. J. C. MULHALL, of St. Louis: I presume that I use the galvano-cautery as much as any other member of the association. I think I have used it certainly not fewer than four thousand times. I have used it persistently for twelve years, and, although I did not have the pleasure of hearing Dr. De Blois read his paper, yet, in view of these facts, I wish to say a few words. I have yet to see any evil results from the cautery, although patients still come under my observation who were operated upon ten years ago. Leaving out experiments with hay fever, I have never attempted to use the cautery unless actual hypertrophy was present—not merely apparent hypertrophy. Then the method of its use has a great deal to do with avoidance of bad after-effects. I read a paper by Lennox Browne several years ago in which he deplored certain accidents which had followed the use of the galvano-cautery, but when I came to his method of using it I knew that such accidents must sometimes occur. The whole secret of the correct method is to keep the electrode at almost a white heat from before contact until

after its withdrawal from the tissue cauterized. That, of course, requires some dexterity. I also take the precaution to use aseptic methods before and after operating. The patient keeps cotton in the nostril until he gets home, so as to filter the air. While temporary reaction may sometimes take place, simulating a coryza, yet I have never seen any permanent ill result.

Dr. MORRIS J. ASCH, of New York: I have used the galvano-cautery ever since it has been brought into practical use and have seen no bad effect from it. The only slight trouble which I have seen has been occasional adhesion between the mucous membranes covering the turbinated body and septum. In Germany they use the cautery a great deal. One author touches the cauterized surface with methyl blue, and advises absolutely dry treatment; but I find patients object to the methyl blue, for it stains handkerchiefs long afterward, and I have not found any advantage in its use after cauterization. Like Dr. Mulhall, I give strict attention to antiseptics.

Dr. D. B. DELAVAN, of New York: Hypertrophic rhinitis presents three states—the acute, subacute, and chronic. One should never cauterize in the acute stage; in the subacute stage there are better means. Only recently I refused to cauterize a patient with the acute form; he went to another gentleman, was cauterized, and came back to me about a month afterward with a thoroughly deformed nose. The method suggested by Dr. Glasgow for the relief of congestive headache, consisting in bloodletting by fine submucous incisions on the turbinated bodies, I have found very valuable in subacute or mild chronic cases of hypertrophic rhinitis. After making the incisions, which I do with an ophthalmologist's knife, I pack the nares with cotton to prevent returgescence, and in twenty-four hours the turbinated is found notably reduced. This method avoids that great objection to the galvano-cautery—namely, destruction of the mucous membrane. Where the cautery is called for, I think the pure trichloroacetic acid, applied as recommended by Professor Gleitsmann, has the effect of preventing the formation of a large eschar, the healing is more prompt, and the irritation less.

The paper is a timely one in calling attention to the possible dangers of the cautery, especially in the hands of the unskilled practitioner and in improper cases. One of the chief dangers is the formation of a cicatrix which will bridge the nostril and leave the patient in a worse condition than ever. Nine tenths of the damage results from neglect of after-treatment. The patient should be seen the next day after operating, or within forty-eight hours at least. The healing process should be encouraged to take place as fast as possible, granulations should be kept down, and the case should not be dismissed until it is certain that cicatrization is well advanced and that adhesion of opposing surfaces is impossible.

Dr. JOHN O. ROE, of Rochester: I have had some experience in the use of trichloroacetic acid after the employment of the galvano-cautery as proposed by Dr. Gleitsmann, and the results have been excellent; it lessens the inflammatory reaction and promotes healing of the parts. The trichloroacetic acid coagulates the albumin in the wound so that it seems to be hermetically sealed, and renders it antiseptic by excluding germs. By following it up with an antiseptic dressing afterward, the wound readily heals.

The galvano-cautery, like all other good things, is a good thing when properly used, but a very bad thing when improperly used. We meet with pseudo-specialists, amateur rhinologists, and general practitioners, who also do a little throat and nose work, who think all that is required in treating the nose is to burn it out; and in consequence of such treatment I have often seen the whole interior of the nose rendered a mass of scar tissue.

A case illustrating the evil consequences of the improper use of the galvano-cautery came under my observation recently. The patient was a man who had been treated by a number of different physicians and in a variety of ways—he had been a kind of “rounder.” The one who had cauterized him most extensively was his family physician, who did some nose work, and I found that instead of lessening the hypertrophy, it had greatly increased it, until both nostrils had become completely obstructed by a mass of scar tissue. Each time he had been cauterized this scar tissue had increased. I simply removed this mass of thickened tissue which had resulted from the inflammatory reaction, freeing the nostrils, and the man was enabled to breathe through his nose for the first time in a long while. In such cases of extreme hypertrophy I always remove the tissue instead of using the cautery, for when removed by surgical means it heals kindly, and the patient has a serviceable nostril.

In order to bring about the best result in this case it became necessary to remove this mass of scar tissue entirely. After this was done and the cut surface healed, free nasal respiration was established. The use of the galvano-cautery is only clearly indicated in cases in which there is a condition of vascular turgescence. In these cases a deep linear cauterization with a fine cautery point gives most happy results, as it not only obliterates the injured blood-vessels, but so binds the tissues down to the deeper structures that turgescence of the tissue is prevented. In those cases where there is a firm hypertrophy of the turbinated bodies the use of the galvano-cautery is contraindicated, and in such cases I never employ it. Not only does it often aggravate the hypertrophy (as illustrated in the case I have alluded to), but extensive scar tissue is the result, particularly if the burning is sufficient to destroy the hypertrophied tissue. In these cases the removal of the hypertrophied tissue by other surgical means should in every instance be performed.

THE PRESIDENT: I have been gratified by the many remarks and also by the criticisms upon this paper, and I was very glad particularly to find Dr. Wright so in accord with what I myself expressed in a communication before this society some years ago, entitled *The Constitutional Causes of Throat Disease*. Some cases—one in particular—were given in which the nose alone was concerned, where the cause was directly referable to the constitutional state. My ordinary course before using the cautery has been to study the constitutional condition of the patient, to find out why the turbinates swell, and then determine what action is to be taken. If cocaine reduced the swelling, it showed that sufficient contractile power was left, or rather that there was not so much hypertrophy but what Nature, if assisted, could prevent or limit the tendency to recurrent turgescence. In such cases I have been accustomed to use the cautery both to destroy the sensitiveness of the mucous membrane so that it might not be so easily irritated by external causes, and to create sometimes by puncture an adhesive inflammation within the tumor. If, as Dr. Roe has so well said, there is so much hyperplastic deposit that Nature, when assisted, can not get rid of it, surgical interference is called for, and, like Dr. Roe, I frequently use some cutting instrument instead of the cautery. I can not conceive that any ill would follow the cautery used by any member of this association; but those who have preceded me have given instances where the ignorant application—the routine application—of it has caused great injury. That, I think, all will concede. Of course, in order to avoid adhesion, the greatest precaution is required to limit the application to one side of the nasal fossa, and great care must be taken afterward to prevent contact of the wound with the opposite healthy surface.

I wish, with Dr. Delavan, to indorse the principle involved in the method of Dr. Glasgow. I have often used it in getting rid of swollen turbinated tissue.

Regarding accidents, like the occurrence of erysipelas, these are liable to take place after any other surgical procedure as well as after treatment of the nose, especially when the usual surgical precautions are not observed.

Dr. FARLOW, of Boston: Some years ago I saw a case of iritis follow the application of glacial acetic acid within the nose. I can not say whether there was any causal relation.

The PRESIDENT remarked that he thought it probably a mere coincidence; the iritis might have been of rheumatic origin.

Dr. DE LOIS: I have been much interested in the discussion which has taken place on my paper, although it has diverged somewhat from the original subject. It was intended merely to portray some of the conditions found years after the operation and not immediately afterward.

**A Case of Suppurating Ethmoiditis.**—Dr. J. H. BRYAN, of Washington, read a paper with this title. (See page 97.)

Dr. J. WRIGHT, of Brooklyn: I was much interested in that part of the paper relating to rhinitis caseosa. Several years before I ever heard of this condition I had a case which I suppose some would designate by that term. It occurred in a young Swedish girl who was in the best of health, but had an obstruction of the nostril, and on examination I found a white mass above the middle turbinated; on washing it out I was astounded at the amount of caseous matter which came away. It did not seem possible that a single nasal cavity could contain so much. I examined it under the microscope, but found little of interest; there were a few crystals such as one frequently sees in sebaceous cysts. The mucous membrane was not much atrophied. On examining the material which came away more carefully, I found something which looked like the paring of a finger nail or sliver of a pearl button. I believe it is not a disease in itself, but a result of inflammation of the ethmoid, or of irritation from retained secretions in a case of mucous polypi. Why in some cases the secretion undergoes this peculiar degeneration I am unable to say.

Regarding ethmoidal disease, it seems to me we are much behind those abroad in the investigation and treatment of this disease. It seems to me very difficult to treat when of long standing. I have had several cases which I have really not known what to do with. In order to treat them I think it is always necessary to remove the anterior end of the middle turbinated body. We should remember that when treating the ethmoidal sinuses we are very near the base of the brain, and should advance with very great caution. I have curetted out the sinuses and then syringed with warm carbolyzed solution through a syringe to which was attached a long slender needle. The cases which I have had have improved, but I have seen none cured which had existed two or three years.

Dr. C. E. DENNISON, of Colorado (by invitation): With the permission of the association I would like to relate a case that I may have the benefit of the opinion of the members as to the diagnosis. The case was that of a man of about twenty-two who had pulmonary tuberculosis. He began to be troubled when asleep, whether lying or sitting, by having to clear his throat, the amount of secretion thrown out at once amounting, after a time, to an ounce or an ounce and a half, being thin, yellowish, and containing a multitude of tubercle bacilli. During the day he would spit up from the lungs perhaps two ounces of muco-fibrinous and purulent material, but this on several examinations was found to contain no tubercle bacilli. The question which I would like answered is, Where did the secretion come from which awoke him from sleep? I do not think it

came from a lung cavity. Could it have come from the mastoid cells which were believed to be diseased? Rhinoscopic examination was negative.

Dr. J. WRIGHT, of Brooklyn: Of course I do not know how thoroughly the nasal cavity was examined in this case, but I have seen a case somewhat similar, the quantity of secretion thrown out coming on at night, in which the sphenoidal sinus was full of pus. I can not conceive how, in Dr. Dennison's case, the secretion could come down from the mastoid cells.

Dr. DELAVAN: The following was a rather peculiar case of disease of the ethmoid cells. The patient, an elderly gentleman suffering from nasal polypus, had on the left side of the nose a very putrid discharge, with considerable pain and sense of oppression and weight. I diagnosed ethmoidal disease, removed the polypus, removed the anterior end of the middle turbinate, found an abscess cavity there, and supposed the patient would be cured. Yet, although very much relieved, the discharge continued, and I found there was an immense amount of thickened tissue in the vicinity of the opening leading to the antrum of Highmore. Various means were discussed for effecting free drainage of the antrum, and finally it was drained through the nose by enlarging the natural opening. By washing out twice a week there has been such improvement that further interference has not been considered necessary. The case is interesting as showing that we may have here a complication of conditions; the value of free drainage; and that, in some cases at least, we can get along without the ordinary surgical interference.

Dr. ALEXANDER W. MACCOW, of Philadelphia: My experience with cases of chronic ethmoidal discharge, usually associated with necrosis sooner or later, is that they are of long duration and extremely difficult to cure. I have a physician friend who has had necrosis of the ethmoidal cells from twenty to twenty-five years. It is a source of annoyance, but he refuses to have further operative interference. While the cases are much relieved by curetting, yet the permanent results are not completely satisfactory. In my experience, it has been extremely difficult to get rid of all the necrosed tissue.

Dr. MULHALL inquired of Dr. MacCOW whether he used general anesthesia in curetting, and Dr. MacCOW replied in the negative.

Dr. BRYAN replied to an interrogatory that he had used general anesthesia in curetting the ethmoid cells in but one case, and that he would never use it again. He agreed with the speakers that the disease was a tedious one to both patient and physician.

The work consists of four parts, treating of the Examination, the Diseases of the Eye, the Anomalies of Refraction and Accommodation, and Operations upon the Eye. There is extremely little to criticise in the entire book, but the reviewer would call attention to the following points: In the chapter on Purulent Conjunctivitis, speaking of the importance of protecting the sound eye from infection, Professor Fuchs makes no mention of Buller's shield, the use of which is the simplest and best method to employ, as it admits of inspection of the sound eye without removal of the protective dressing. The section on trachomatous conjunctivitis is one of the best ever written, particularly with regard to the symptomatology and pathology of the disease, but we think the author places too much reliance on the treatment with caustics, and devotes too little attention to modern operative methods of treatment. In this country at least, the use of jequirity has been almost entirely abandoned.

In the chapter on Convergent Squint, the most complex and difficult subject in all ophthalmology, the author is disposed to place too much reliance on operative procedures and too little on the prolonged use of atropine and fully correcting glasses.

The chapter on Squint Operations is exceptionally good, and the subject of muscular insufficiencies is very clearly presented, though hardly with that fullness which an American ophthalmologist would expect. In the additions to this subject by the translator, we think that he attaches too much importance to the beneficial effects of partial tenotomies, which are far from being permanent, and alleges for this method of operating too brilliant and exact results. The element of time frequently falsifies the first favorable prognosis of the result of a partial tenotomy in these cases.

With these few exceptions, the reviewer must express the most cordial commendation of Professor Fuchs's work in its American dress.

*Outlines of Zoology.* By J. ARTHUR THOMSON, M. A., F. R. S. E., Lecturer on Zoology in the School of Medicine, Edinburgh; Joint Author of the "Evolution of Sex"; Author of "The Study of Animal Life." With Thirty-two Full-page Illustrations. New York: D. Appleton & Co., 1892. Pp. xvi+641.

We have often mentioned zoology as among the sciences that ought to be more generally studied by physicians in this country than they are at present. By their neglect much information capable of being turned to practical account is sacrificed, to say nothing of the mental training attendant upon studying systems of classification. The trouble is that these studies are apt to be looked upon as necessarily "dry," but it is just such books as that which Mr. Thomson has here given us—and their number, we are glad to say, is fast multiplying—that ought to dispel this false notion. The book is thoroughly "readable" from beginning to end. Perhaps the most striking illustration of the truth of this statement is to be found in the paragraphs devoted to the "courtship" of spiders, beginning on page 288, in which the author cites Mr. and Mrs. Peckham's interesting observations on the sexual relations of these creatures, as recorded in *Occasional Papers of the Natural History Society of Wisconsin* (Milwaukee, 1889); but that is only one of the more noticeable. We should be sorry, however, to give the impression that the book depended for its value on its entertaining quality; the author is really very clever in imparting accurate scientific knowledge, largely by virtue of his skill in tabular and diagrammatic representation. Through the book there runs a thread of suggestion, with very little of speculation, connecting the facts of zoology with the doctrines of evolution and descent—doctrines that must be of interest to persons of all shades of opinion and belief.

## Book Notices.

*Text-book of Ophthalmology.* By Dr. ERNEST FUCHS, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the Second Enlarged and Improved German Edition. By A. DUANE, M. D., Assistant Surgeon, Ophthalmic and Aural Institute, New York. With Numerous Illustrations. New York: D. Appleton & Co., 1892. Pp. xiii+788.

This is a translation of one of the most recent foreign works on ophthalmology, as it is easily one of the very best. It is essentially a text-book and occupies deservedly high rank for the clearness and simplicity of its style and its presentation of the best modern thought. The translator has done his work extremely well, and has made such additions as seemed to him necessary to adapt the book to American readers.



## BOOKS, ETC., RECEIVED.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Robert Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Third Edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1892. Pp. xiii-17 to 696.

Disease in Children. A Manual for Students and Practitioners. By James Carmichael, M. D., F. R. C. P. Ed., Physician Royal Hospital for Sick Children, etc. Illustrated with Thirty-one Charts. New York: D. Appleton & Co., 1892. Pp. xvi-591. [The *Students' Series*.] [Price, \$3.]

Transactions of the American Gynecological Society. Volume XVII, for the Year 1892. Philadelphia: W. J. Dornan, 1892. Pp. xxxix-493.

Hemianopsia or Hemianopia. A Clinical Lecture delivered at the New York Post-graduate Medical School. By William Oliver Moore, M. D. [Reprinted from *International Clinics*.]

Total Extirpation of the Uterus: Improved Method of treating the Stump. By Charles P. Strong, M. D., Boston, Mass. [Reprinted from the *Boston Medical and Surgical Journal*.]

A Contribution to the Study of Abdominal Pregnancy. By Henry C. Coe, M. D., of New York. [Reprinted from the *Medical News*.]

The Elective Cæsarean Section; the most Favorable Time for Operation. By Henry C. Coe, M. D., New York. [Reprinted from the *American Journal of Obstetrics*.]

Phthisis Bulbi and Artificial Eyes. A Clinical Lecture delivered at the New York Post-graduate Medical School. By William Oliver Moore, M. D. [Reprinted from *International Clinics*.]

A Consideration of some of the Affections of Tendon Sheaths and Bursæ, and their Relations to Injuries and Diseases of the Joints. By Royal Whitman, M. D., New York. [Reprinted from the *Medical Record*.]

Observations on Tubercular Knee-joint Disease in Children. By Royal Whitman, M. D., New York. [Reprinted from the *Archives of Pediatrics*.]

Hyperæsthesia of the Vaginal Orifice a Cause of Reflex Pelvic Pain. By Charles P. Strong, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

Is Evolution trying to do away with the Clitoris? By Robert T. Morris, M. D., New York. [Reprinted from the *American Journal of Obstetrics*.]

Some Common Errors in the Physical Training, Education, and Dress of Girls. By J. Schenck, M. D., Mount Carmel, Ill. [Reprinted from the *Transactions of the Illinois State Medical Society*.]

Purulent Brain Deposits, and Phlebitis and Thrombosis of the Cerebral Veins and Sinuses following Ear Disease. By Frank Allport, M. D., Minneapolis, Minn. [Reprinted from the *Journal of the American Medical Association*.]

Large Cavernous Angioma, involving the Integument of an Entire Auricle, successfully treated by Dissection, Free Resection of Diseased Tissue, and Ligation of the Afferent Trunks *in situ* by a Special Method. By Rudolph Matas, M. D., New Orleans, La. [Reprinted from the *Medical News*.]

A New Method of checking Bleeding after Tonsillotomy. By Robert H. M. Dawbarn, M. D., New York. [Reprinted from the *Medical Record*.]

Arterial Saline Infusion. A Report of Three Additional Cases by the New Technique; also of a Case of Infant Diarrhoea treated by Saline Infusion. By Robert H. M. Dawbarn, M. D., New York. [Reprinted from the *Medical Record*.]

Observations on Cholera and Quarantine. A National Quarantine implies National Seclusion. By C. W. Chancellor, M. D., Baltimore, Md.

A Clinical Study of Eleven Cases of Asiatic Cholera treated by Hypodermoclysis and Enteroclysis. By Judson Daland, M. D., Philadelphia. [Reprinted from the *University Medical Magazine*.]

Uterine Fibromata; Removal of Twenty-seven, with Two Deaths. By J. M. Baldy, M. D., Philadelphia. [Reprinted from the *University Medical Magazine*.]

A Case of Mastoid Disease following an Operation for the Removal of Adenoid Vegetations. By Gorham Bacon, M. D., New York. [Reprinted from the *Transactions of the American Otological Society*.]

Antipyrine for the Relief of Headaches. By Græme M. Hammond, M. D., New York. [Reprinted from the *Journal of Nervous and Mental Disease*.]

The Principles and Application of the Axis-traction Forceps, with Special Reference to the Instrument devised by Tarnier. By Stanley P. Warren, M. D., Portland, Me. [Reprinted from the *Transactions of the Maine Medical Association*.]

Simplicity an Element of Success in Surgery. By R. Stansbury Sutton, M. D. [Reprinted from the *Medical Mirror*.]

Eleventh Annual Report of the Hospital for Women and Children, Newark, N. J. December, 1892.

Report of the Board of Directors and Superintendent of the North Carolina Insane Asylum, for the Two Years ending November 30, 1892.

Thirty-ninth Annual Report of the New York Infirmary for Women and Children. For the Year 1892.

## Miscellany.

The Medical Society of the State of New York will hold its eighty-seventh annual meeting at the City Hall, in Albany, on Tuesday, Wednesday, and Thursday, February 7th, 8th, and 9th, under the presidency of Dr. Lewis S. Pilcher, of Brooklyn. The provisional programme includes the following titles: The president's inaugural address; The Relation, in the Male and Female, of Genital Disease to Mental and Nervous Affections, by Dr. Landon Carter Gray, of New York; The Epileptic Interval; its Phenomena and their Importance as a Guide to Treatment, by Dr. William Browning, of Brooklyn; Reflex Disturbances in the Causation of Epilepsy, by Dr. William C. Krauss, of Buffalo; Mental Epilepsy, by Dr. J. Montgomery Mosher, of Ogdensburg; The Development of Epilepsy after Traumatic Injury to the Skull, by Dr. B. Sachs, of New York; The Treatment of Uramic Convulsions, by Dr. R. C. M. Page, of New York; The Registration of Midwives, by Dr. J. L. Kortright, of Brooklyn; The Relative Value of Certain Obstetrical Operations (General Review of the Operations to be Discussed, by Dr. Egbert H. Grandin, of New York; The Limitations of Embryotomy, by Dr. N. Clifton Edgar, of New York; The Limitations of the Cæsarean Section, by Dr. Robert A. Murray, of New York; The Anatomical Limitations of Symphyseotomy, by Dr. J. E. Kelly, of New York; The Clinical Limitations of Symphyseotomy, by Dr. Charles Jewett, of Brooklyn; Practical Antisepsis and Asepsis, by Dr. Howard A. Kelly, of Baltimore; Epitaphs from the Tombs of Medical History, by Dr. Joseph H. Hunt, of Brooklyn; The Management of Suppuration complicating Tuberculous Disease of the Bones and Joints (papers by Dr. V. P. Gibly, of New York; Dr. Roswell Park, of Buffalo; Dr. Henry Ling Taylor, of New York; and Dr. Louis A. Weigel, of Rochester); The Present State of Knowledge as to Carcinoma (The Pathology of Carcinoma, by Dr. H. C. Coe, of New York; The Etiology of Carcinoma, by Dr. Roswell Park, of Buffalo; The Value of Internal Medication in the Treatment of Carcinoma, by Dr. Jarvis S. Wight, of Brooklyn; The Results Obtainable

from the Use of Aniline Products in Carcinoma, by Dr. Willy Meyer, of New York; Caustics in the Treatment of Carcinoma, by Dr. Daniel Lewis, of New York; The Knife in the Treatment of Carcinoma, by Dr. N. Jacobson, of Syracuse); Tuberculous Epididymitis, by Dr. Herman Mynter, of Buffalo; Newer Methods of Diagnosis and Treatment of Stomach and Intestinal Diseases (The Practical Value of the Newer Methods of Examination in the Diseases of the Stomach, with a Consideration of the Indications given for Diet and Treatment by such Examinations, by Dr. Henry L. Elsner, of Syracuse; The Methods of obtaining and examining the Stomach Contents in Disease for Purposes of Diagnosis, by Dr. J. Fuhs, of Brooklyn; The Disturbances of the Motor Function of the Stomach, their Diagnosis, Symptoms, and Treatment, by Dr. C. G. Stockton, of Buffalo; The Physiological Effects of Electricity in the Stomach, the Indications for its Administration and Use in Gastric Disease, and the Methods of using the Same, by Dr. Max Einhorn, of New York); the President's Anniversary Address (in the Senate Chamber), on The Evolution of the American Surgeon; Report of a Case of Severe Abdominal Injury terminating in Recovery, by Dr. J. S. Cooley, of Glen Cove; The Treatment of Inguinal Hernia, by Dr. Alexander Dallas, of New York; Certain Types of Septicemia resulting from Abortion, by Dr. Andrew F. Currier, of New York; Puerperal Sepsis, its Prevention and Cure, by Dr. W. W. Potter, of Buffalo; Hoarseness, by Dr. W. Franklin Chappell, of New York; The Diagnosis and Nomenclature of Fevers, by Dr. Nelson G. Richmond, of Fredonia; Congenital Opacities of the Lens, by Dr. W. F. Mittendorf, of New York; Are Stoerk's Blennorrhœa and Laryngitis Sicca One and the Same Disease? by Dr. W. Freudenthal, of New York.

**The Pennsylvania Medical Practice Bill.**—The following is the text of the bill to which we made brief editorial reference in our last issue:

"An act to establish a State Board of Medical Examiners and Licensers and to define the powers and duties of such board.

"Whereas, the safety of the public is endangered by incompetent physicians and surgeons, and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians and surgeons shall be allowed to practice their profession.

"SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, that within one month after the passage of this act the Governor shall appoint a State Board of Medical Examiners and Licensers, consisting of nine members, three to serve for one year, three for two years, and three for three years, in the first instance; and thereafter annually the Governor shall appoint, by and with the advice and consent of the Senate, three members to serve for three years in place of those whose terms then expire. The said persons so appointed shall be graduates of some legally chartered college or university having the power to confer medical degree, citizens of the United States and of this Commonwealth, who shall have been in the active practice of medicine or surgery for a period of not less than ten years, but no two of whom shall be residents of the same county, and none of whom shall be a member of the faculty or staff of any medical school or university. Each member of the said board shall receive a certificate of appointment from the Governor, and shall file the same within twenty days with the prothonotary of the Court of Common Pleas of the county in which said member is registered under existing law.

"Sec. 2. The said board shall be known by the name and style of the State Board of Medical Examiners and Licensers of the Commonwealth of Pennsylvania, and shall have a common seal, and may make and adopt all necessary rules and regulations and by-laws not inconsistent with the Constitution and laws of this Commonwealth or of the United States, and shall have power to locate and maintain an office within this State for the transaction of business. Five members of the said board shall constitute a quorum for the transaction of business.

"Sec. 3. Every appointment to fill a vacancy or vacancies in the said board shall be for the unexpired term, and the said vacancy or vacancies shall be filled by the Governor within sixty days after notification of the same by the board, and he shall have power to remove

any member of said board for criminal, scandalous, or dishonorable conduct.

"Sec. 4. The said board shall organize at Harrisburg within three months from the date of its appointment, and shall elect from its own number a president and a secretary who shall also act as treasurer, both of whom shall hold their offices for one year, or until their successors are chosen.

"Sec. 5. The members of the said board shall each receive a salary not exceeding three hundred dollars per annum, to be paid out of the fees for examination. The secretary and treasurer shall receive an additional salary, to be fixed by the board, and shall file with the president of the board a bond in the sum of one thousand dollars, conditioned for the faithful performance of his duties. The necessary expenses of the said board shall also be paid out of the fees, and any balance remaining from the fees after the disbursements herein specified shall be paid into the treasury of the Commonwealth.

"Sec. 6. The said board shall examine all applicants for license to practice medicine or surgery in this Commonwealth who are properly qualified according to the provisions of Sec. 7 of this act, and no one shall be excluded or rejected on account of adherence to any special system or school of practice. It shall hold two stated meetings in each year—one at Pittsburgh and one at Philadelphia respectively—and may hold special meetings at such times and places as it may deem proper. All examinations, when practicable, shall be conducted in writing, and all examination papers, together with the reports and action of the examiners thereon, shall be preserved among the records of the said board for a period of five years, during which time they shall remain open for inspection at the office of the said board.

"The applicants shall be examined in anatomy, physiology, chemistry, pathology, hygiene, toxicology, differential diagnosis, surgery, and obstetrics; and each applicant, upon receiving from the secretary of the board an order for examination, shall draw by lot a confidential number, which he or she shall place upon his or her examination paper, so that when said papers are passed upon by the examiners the latter shall not know by what applicant said papers have been prepared, and upon each day of examination all candidates shall be given the same set of questions.

"Sec. 7. Any person on paying ten dollars to the secretary of said board, and on presenting satisfactory proof of being over twenty-one years of age, of good moral character, and of having received a sufficient preliminary education as defined by said board, and a diploma from some legally incorporated medical college or university having authority to confer degrees in medicine, shall be entitled to examination by the said board, and in case of failure at any examination shall have the privilege of subsequent examinations without the payment of an additional fee. Each applicant who shall have passed a satisfactory examination shall receive from the said board under seal a license to practice medicine and surgery in the Commonwealth of Pennsylvania, and the said board may at its discretion grant licenses without examination to persons holding licenses from similarly constituted boards of examiners or boards of health in other States.

"Sec. 8. The secretary shall record in a book to be kept for this purpose in the office of the said board the name, age, sex, residence, date, and place of examination, the examination number, the examination average on each branch, the general average, and date of issue of license in case such license is granted. Said book shall be opened to public inspection, and on or before the last day of December of each year the said board shall publish or cause to be published a list of the names and addresses of such persons as shall have received licenses from the said board within twelve months immediately thereto preceding.

"Sec. 9. After the first day of July, Anno Domini one thousand eight hundred and ninety-three, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this act, and shall have exhibited to the prothonotary of the Court of Common Pleas of the county in which he or she desires to practice medicine or surgery a license duly granted to him or her by the said State Board of Examiners and Licensers, whereupon he or she shall be entitled, upon payment of one dollar, to be duly registered in the office of the prothonotary of the Court of Common Pleas in said county, and any person violating any

of the provisions of this act shall be guilty of a misdemeanor, and, upon conviction thereof in the Court of Quarter Sessions of the county where the offense shall have been committed, shall pay a fine of not less than one hundred dollars nor more than five hundred dollars for each offense, one half of which fine shall be paid to the prosecutor.

"Sec. 10. Nothing in this act shall apply to commissioned medical officers of the United States Army or Navy, or of the United States Marine-Hospital Service, nor to any member of the house or resident staff of any legally chartered medical college or university or hospital during his term of service therein, nor physicians of other States meeting duly registered physicians of this State in consultation, nor to those practicing dentistry exclusively. And nothing in this act shall be construed to prohibit the practice of medicine and surgery within this Commonwealth by any practitioner who shall have been duly registered before the first day of July, Anno Domini one thousand eight hundred and ninety-three, according to the terms of the act entitled 'An act to provide for the registration of all practitioners in medicine and surgery,' approved the eighth day of June, Anno Domini one thousand eight hundred and eighty-one.

"Sec. 11. For the purpose of this act the words 'to practice medicine or surgery' shall mean to treat, operate on, or prescribe for, any physical ailment of another, for money, gift, or reward. But nothing in this act shall be construed to prohibit service in cases of emergency or the domestic administration of family remedies.

"Sec. 12. All acts or parts of acts of Assembly inconsistent herewith shall be and are hereby repealed."

This bill, as we have before stated, has the cordial support of the Medical Society of the State of Pennsylvania. The following letter, addressed to us by Dr. D. Benjamin, of Camden, N. J., shows how the medical profession feels about the matter:

"A strange state of things exists now in Pennsylvania. The medical colleges are in a real dilemma. They are so anxious to have their diplomas recognized as a legal license to practice that some of the very influential professors of the colleges have opposed the bill creating a medical examining board that has been before the Legislature for years past; and the State now has no board.

"The States around Pennsylvania having such examining boards, the result is that over twenty per cent. of the graduates, being unable to pass, or afraid to go before the State boards, are compelled to locate in Pennsylvania.

"The M. Ds., especially the half-cut kind of machine-made, as it were, are getting so thick that you can stir them with a stick. So you see the State will have to pass a law soon. One very pleasing feature of the situation is that the colleges will have to give the students a medical education as well as a diploma, which they are not all doing as yet. As a proof of this assertion, let me offer the following:

"I was one of three doctors to examine applicants for resident physician at a New Jersey hospital. Among the applicants was a young man who had just been graduated from a leading Philadelphia medical college. His ignorance on every branch was astonishing. Here is a sample of one of the written questions and his written answer:

"Q. Write a prescription for a fifty-per-cent. emulsion of cod-liver oil?

"Ans.:

"B	Cod liver oil.....	3 j;
	Tinctor of iron.....	3 ij;
	Sulphat of quina.....	2 j;
	Syrup simplicis.....	q. s.

"ad Oss."

No comment is necessary.

"I believe the New Jersey law is about the best you can get at present."

The State Board of Medical Examiners of New Jersey has issued through its secretary, Dr. William Perry Watson, the following circular, dated January 11th: Candidates applying for a license (after the July, 1893, meeting of the State board of medical examiners) to practice medicine in New Jersey will be examined in the following subjects arranged in sections as follows: Sec. 1, Materia medica and therapeutics; Sec. 2,

Obstetrics and gynaecology; Sec. 3, Practice of medicine (including diseases of the skin, nose, and throat); Sec. 4, Surgery (including surgical anatomy, and diseases of the eye, ear, and genito-urinary organs); Sec. 5, Anatomy; Sec. 6, Physiology; Sec. 7, Chemistry; Sec. 8, Histology, pathology, and bacteriology; Sec. 9, Hygiene and medical jurisprudence. The following percentages will be required also after that date before a license will be issued: Candidates examined in the first class—i. e., graduates of five years or more—shall obtain a total average of eighty (80) per cent. Candidates examined in the second class—i. e., graduates of less than five years—shall obtain a total average of seventy-five (75) per cent., providing that in no one section shall the percentage be less than thirty-three and a third (33 1/3) per cent., in which case, however, should the total average percentage in all the other sections be above seventy-five (75) per cent., the candidates may be granted a second examination, immediately, upon that section. Candidates examined in the third class—i. e., non-graduates who have taken three full courses of lectures in a reputable medical school—shall obtain a total average of eighty (80) per cent., and candidates taking their preliminary or final examination shall obtain a total average of eighty (80) per cent. at each of said examinations.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*



## Original Communications.

THE STERILIZATION OF MILK  
AT LOW TEMPERATURES.AND THE EQUIPMENT OF MILK LABORATORIES FOR  
INFANT FEEDING.

By HENRY KOPLIK, M. D.

THE present article details the results obtained, during the past two years, with completed laboratory facilities for the preparation of a wholesome food for infants in direct connection with their treatment in the dispensary. In infants and children the treatment of a certain class of diseases—that of the gastro-intestinal tract—is so inseparably linked with the particular food given to such patients that the equipment of laboratories for the preparation of infant food in direct connection with a service for the treatment of diseases of children can not only be looked upon as a decided advance over former methods, but in the future the only just course to pursue. The physician who simply prescribes for his little patient—when the infant must depend very often upon the good intentions of its parents, schooled neither in the art of cleanliness nor in that of cooking even of the most primitive nature—scarcely performs more than half the work expected of him. The conditions present among the immense infant clientele of the poor are an overanxious mother, worn out by unsuccessful attempts to make amends for her mistakes and those of others; an unscrupulous public caterer who, either through the avenues of chemical science or the less noble one of dairy manipulation, looks upon these little infants as a just object of experiment or gain. We wash out the infant's stomach, send a parent home with such an infant, and after twenty-four or forty-eight hours bring the patient, through the administration of albumins, to a condition of tolerance of food, to find that the stomach must again begin the digestion of unwholesome milk, or attempt the assimilation of certain chemical compound foods. If we direct a parent to prepare the milk for an infant in a certain manner, the first requisite is to obtain a wholesome milk. During the summer months in a large city like New York it is not an exaggeration to say that among the poorer classes a wholesome milk is exceptional. There are brilliant exceptions to this statement. A careful, cleanly mother, intelligent, unheeding of the suggestions of her neighbors, will follow directions as to the preparation of the baby's food, the dairy from which it is obtained and its dilution, to the letter. Such infants are fortunate.

In the experience of the writer, and this is extensive among the poor, it has occurred to him to occasionally see an infant brought up by a careful mother on the bottle in the tenement district as healthy in appearance as one could desire. This only proves the rule stated above—that most infants suffer in the crowded tenement districts of the city directly from the lack of a wholesome food basis (milk), or the want of knowledge in its preparation on the part of the parent. The object of the author in establishing a labora-

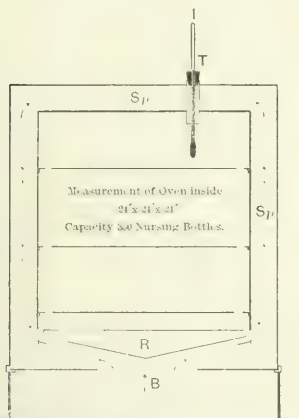
tory in connection with the department for the treatment of diseases of children in his own dispensary has been to give his infant patients a wholesome food basis—that is, milk; such a milk, well prepared, he was certain was demanded by the children. If not adulterated, it should not ferment at least for twenty-four hours. Given a patient who is severely ill, all food is cut off for twenty-four hours, the stomach is washed, and within forty-eight hours an infant who was brought to us in collapse is playing in its mother's arms. It is a very trying twist of conscience to allow such a patient to return to the milk of the nearest grocer or dairy, or some form of infant food. This state of affairs has been happily eliminated from the author's practice. We can with a well-equipped laboratory not only carry out the most absolute cleanliness in the food basis—milk—but we can limit and regulate the daily quantity, the exact diluent, and be certain that, under ordinary conditions, success will follow in a good proportion of cases. There is still a percentage of cases which is lost annually and in which all our efforts fail. In such infants it seems that either the conditions, when we are brought face to face with the case, have been too long present, the infant is extremely atrophic or in a dying condition, or the mother, after trying for a short time to administer the prescribed food to an infant and being rewarded by the refusal of the little one to partake of any food, instead of seeing a favorable chance to allow the infant to recuperate, has promptly left the service and gone elsewhere. (One hundred and four of a total of six hundred and ninety-three children had this fate last summer.)

In May, 1890, the author exhibited to the County Medical Society an apparatus which served to carry out his first attempt in meeting the wants of his little patients. The laboratory at that time was a large wash boiler and gas stove in an old storeroom of the old building of the Eastern Dispensary, in which the author was and is still attending physician. His efforts in the direction of preparing a wholesome milk were ably seconded by Dr. T. T. Gaunt, our physician in chief. At this time the attempt, which was still crude, to bring the facts obtained in the scientific laboratory into direct touch with daily practice did not meet with enthusiastic encouragement from all sides. In the fall of that year results were made known through an article in the *New York Medical Journal*. Dr. Richard Stein, of this city, brought these efforts to the notice of the laity, and soon means were not wanting to equip a laboratory which, though not beyond improvement, still carries out very completely the ideas of the author. This laboratory has now been in active operation for two years, and the milk prepared has been utilized mostly in connection with the infants and children who are treated in the Good Samaritan Dispensary, both in the service of other physicians and in that of the author. The milk supply is drawn from a leading reliable dairy, and is delivered daily in refrigerator tubs at the laboratory. The process of sterilization is under direct control, and in the summer months the laboratory is a part of the service of the department of diseases of children.

Cow's milk sterilized at temperatures above 100° Celsius undergoes certain gross and chemical changes unfitting it as an article of food. At 100° C. Munk has shown that the casein elements of the milk undergo changes which render the milk less desirable from a digestible standpoint. Leeds and Davis have, in a very interesting study, confirmed these points. Hueppe, in his classical study upon the sterilization of milk, finds that with the smallest quantities of rennet added to milk a retarded action is shown when the milk has been exposed to 80° Celsius; but the coagulation is still as complete as at lower temperatures. The action of the ferment was shown more delayed from 85° Celsius and most incomplete at 100° C., with the following limitations: From 90° Celsius to 100° Celsius coagulation in the presence of rennet was not only delayed but *incomplete*. Under similar conditions milk which had been exposed to 80° to 85° Celsius showed complete coagulation though somewhat delayed. Above 90° Celsius, therefore, the action of the ferment was not only more *markedly delayed* than at any lower temperature, but *incomplete*. From 75° Celsius upward a gradual change in the albuminoids of the milk occurs. In the above-mentioned few cardinal points lie the limitation and art of rational sterilization of milk. While we can not avoid some changes, we can reduce them to a certain limit. This lies between 85° and 90° Celsius. For practical every-day clinical work lower temperatures which approach the Pasteur limits—65° to 68° Celsius—are unsatisfactory for milk. A single exposure of milk to temperatures lower than 85° Celsius, while it may be a slight chemical advantage, will not retain the milk in a sterile condition for twenty-four hours, even if such milk is suddenly cooled after exposure to the above-mentioned temperature. The writer has worked upon this problem for a long time. City milk was raised to 70° Celsius and kept ranging absolutely between this point and 75° Celsius for half an hour; it was then suddenly chilled by being thrust into cold water; after completed cooling it was stored *without ice*. Such milk fermented invariably within twenty-four hours. On the whole, it will be shown that 85° to 90° Celsius—not above—has in the writer's hands proved the most satisfactory and rational temperature to employ for milk which is to be distributed without control. Such milk is wholesome and unchanged after twenty-four hours, and may keep even in warm and moist weather a week or more without the aid of ice. Bitter has, by complicated machinery, succeeded in keeping milk recently collected for twenty-four hours, when previously subjected to (in large quantities) 70° to 75° Celsius and then rapidly cooled by passing over coolers to 18° C. This has been used in Germany to transport milk to the city from dairies. When heated to 70° Celsius and rapidly cooled to 20° a *successive number of times*, small portions of milk have kept for a time (Strub). Dr. Freeman, of New York, has recently shown an apparatus for heating milk to the Pasteur temperature once, but such milk must be carefully stored upon ice or in an ice chest. Pasteurized milk, or rather partially Pasteurized milk, has for a long period been used in exceptional cases both in Europe and in this country; but, after much study in his own daily work, the author has found it

practical to employ the lowest temperature at which milk exposed for half an hour would keep wholesome, free from the least suspicion of change for twenty-four hours without the aid of ice in the warmest and most humid weather. After many discouraging attempts to find this temperature, the author has fixed upon the temperatures ranging from 85° to 90° Celsius as the range at which milk may be safely sterilized and placed in the hands of the most ignorant mothers and still keep for twenty-four hours or more, even if ice is not used. With our present facilities absolute results can be attained. It has been found that when the temperature of the milk was allowed to fall below the above limits the milk fermented within twenty-four hours. Above the indicated limit sterilization is a superfluous process. The milk heated above this point shows gross changes which milk carefully sterilized within 85° C. to 90° C. does not. Milk sterilized between 90° C. and 100° C., at least in New York, presents to the naked eye a distinctly boiled appearance. The butter in the milk is apt to separate and float on the surface, and to the taste the milk has a boiled flavor. The coagulated casein on the bottle is more marked when the temperature has been allowed to rise above 90° C. than in the milk in which the temperature has been carefully gauged between 85° and 90° C. Again, children thrive better on milk heated at the lower temperature. In the apparatus used in the laboratory designed by the author it is not possible to keep milk at a fixed single temperature, for it will be at once apparent that bottles of milk in the lower portion of the sterilizer will always vary by two to three degrees from those at the top, and this has been proved by repeated measurements. There being no practical form of apparatus by which a very large number of portions (bottles) of milk can be sterilized at the Pasteur temperature and keep without ice for twenty-four hours, the lowest safe temperature above has been employed and found more desirable than a higher one. Milk sterilized between 85° and 90° C. after twenty-four hours differs in general appearance but little from raw milk. The casein, to be sure, is found at the sides of the bottle, but not to a marked degree. The taste is as little like that of boiled milk as possible, and, on the whole, this temperature may be regarded as the most available. A very important part of the plan of the laboratory is to give the infant its milk in separate nursing portions, each portion being enough for one nursing. To meet this, two sizes of bottles have found most general use—a bottle holding two, another from four to five ounces of pure milk. To this end ordinary green glass prescription bottles, three and six ounce size, were used, so as to give space for diluents. In other words, the bottles were not filled with milk, space being left as above. One of the most important parts of the general plan of giving small portions of milk to such a large number of infants, and this in a rotating material, is to insure the absolute cleanliness of the bottle in which the fresh milk is sterilized. This is important, for it will be seen at once that these bottles are returned and new ones issued to homes in which there is no control until the twenty-four hours are past, when new portions are issued. To this end the bottles when they are returned are filled with a warm

saturated solution of soda; after twelve hours they are washed with a brush and applicator both on the outside and inside. When they have been cleaned and dried, the bottles are placed in large ovens which are heated up to a temperature of  $160^{\circ}$  C. to  $170^{\circ}$  C. The dry hot-air oven of Koch is the model form used. After being kept at this

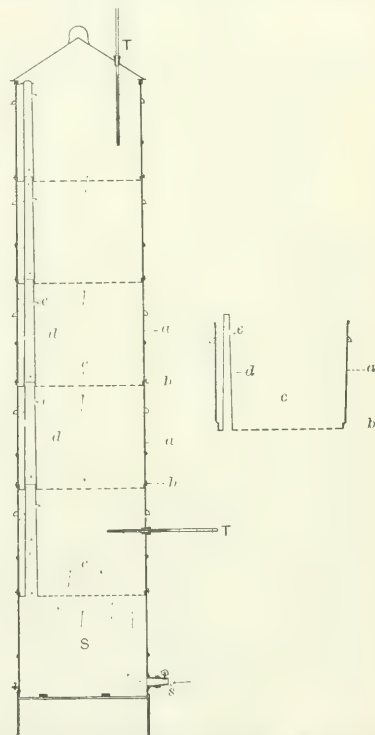


Hot-air oven (Koch) for sterilizing bottles, double walled. B, burner and source of heat; R, radiator; Sp, space between outer and inner wall of oven; T, thermometer. Measurement inside,  $24'' \times 24'' \times 24''$ . Capacity, 350 nursing bottles.

temperature for forty minutes, they are allowed to cool, and only then are filled with milk. Any infectious material adherent to the bottles from the home of a little patient is thus made harmless. I think this is a very important part of my plan. After the above-described dry-oven sterilization the bottles are carefully inspected and any bottles showing specks of a suspicious nature are rejected.

The apparatus for sterilizing the milk consists of three very large sterilizers constructed in compartments. These sterilizers are made of stout block tin. Each sterilizer consists of five compartments and a steam box. Each compartment measures twenty inches in diameter and eight inches in depth, and will hold fifty large-size bottles. The compartments are furnished with perforated bottoms, and fit one on top of the other in such a manner as to form a compact column through which the steam percolates. A thermometer is introduced through the cover of the top compartment and dips into the body of a bottle of milk in this compartment. The temperature of the milk can be accurately noted from the outside of the apparatus. A stout tin pipe, which runs the whole length of the apparatus in each compartment and fits accurately into the pipe of the compartment above, serves to deliver the steam to the top of each compartment and thus fill the same uniformly during sterilization. The bottles, which are filled with the requisite quantity of milk, are placed, uncorked, in each compartment and covered with a clean flannel cloth. When the steam is turned on it does not percolate rapidly at the top of each compartment, being prevented by the flannel covering of the bottles. The opening in the tube at

the side of each compartment fills the place above the bottles with steam. When the whole mass of milk has reached  $85^{\circ}$  C. the process is continued for an additional half-hour. The bottles are then taken out and rapidly corked with sterile rubber corks. The whole process consumes an hour. At first, when we were compelled to use water in the steam box and raised this to the steaming point, much more time was consumed; but this year superheated steam was let into the sterilizer directly from engine boilers, and much more accurate results were attained in a shorter space of time. As stated, three sterilizers have been in constant use, and over seven hundred portions of milk were issued daily in midsummer without any difficulty. There have also been two hot-air ovens in constant



Steam sterilizer — a, separate compartments; b, steam-tight closure; c, perforated bottoms; d, extra stout tin supply-pipe; e, opening for supply of steam to top of compartments; S S, steam box and supply pipe.

use for the sterilization of bottles. The diagrams of these explain themselves. The radiating false bottom in the sheet-iron ovens will be found to diffuse the heat rapidly and uniformly. It is, I believe, an American patent appliance, as also the tube running through the sterilizers. I stumbled upon them in my travels looking for suitable apparatus.

The milk utilized in the laboratory of the Good Samaritan Dispensary is obtained from a reliable State dairy. It is delivered to us in cans of forty quarts' capacity and is



packed in ice. It would be very desirable to control the collection of milk, but this is at present impossible, if for no other reason than the lack of funds. The milk is tested daily in several simple ways. It must have from twelve to fourteen per cent. of cream, and a test portion is boiled for ten minutes before placing in the nursing-bottles. Milk when boiled will, even if sweet to the taste, coagulate if well on in fermentative changes. Such milk is dangerous even if it shows small curdled particles after boiling. Sometimes milk which tastes sweet will turn almost solid upon boiling, showing what advanced changes are present. The chemical tests are complicated and can not be applied in a short space of time. Slight acidity, not apparent to the taste, will reveal itself after boiling or sterilization by marked flocculence of the milk; such milk is unfit for use as a food. A little experience will enable one to distinguish between this flocculent precipitate of casein due to acidity and the coagulated casein on the sides of the bottle present after sterilization in all good milk.

The bottling of the milk is performed with as little handling as possible by means of very large glass percolator funnels. The lading of the milk into these funnels tends to evenly distribute the cream in the milk.

The corking of the bottles, as stated above, is performed rapidly after sterilization is completed. The corks are cleaned with a brush, boiled for an hour in the solution of soda, rinsed, and sterilized in steam. Black rubber corks are used, and when brittle are rejected.

It has been found advisable this year to furnish very sick infants with the diluent for the milk. To simply direct the mothers to dilute the milk with barley water is with the younger infants not advisable. Few mothers know how to prepare the barley water so favorably known to the profession. These patients are given a quantity of sugar-of-milk solution—four per cent.—in distilled water, sterilized. Some infants who vomited milk diluted with almost every known diluent, retained milk diluted at home by the mother with this water. The suggestion of using this as a diluent was obtained from Professor Soxhlet through the kindness of Mrs. Felix Adler, a patroness of the laboratory. Lime water as bought in the stores is also a very good diluent. Barley water is so difficult to prepare in the proper manner that, unless we have a very intelligent patient who possesses art in cooking, it is only a disappointment. Each bottle of sterilized sugar water is labeled with directions for dilution of the milk. I have found the directions laid down and adopted by Professor Escherich, of Gratz, very practical and convenient, and have had them printed upon these labels.

The work done in the laboratory may be estimated from the following figures for two seasons:

Separate nursing portions prepared..... 97,000

Children supplied..... 1,268

Seven hundred and twenty-nine infants received the milk for only one or two days, leaving 539 infants of the above gross number who received the milk for a length of time—one week to five months—sufficient to estimate its benefits. Excluding as much as possible doubtful results, it is thought that, of 539 infants, 393 can be put down as

having been really aided or benefited by the administration of the milk.

It must be remembered that, as with all other treatment in dispensaries, the great percentage of clientele is an impatient, rotating one. If immediate results are not attained, the infant is carried to the next institution, to be the subject of an entirely different method of treatment. The milk has less force to retain such patients than a medicine, and whereas a mother will come for days through the influence of a mystic prescription, it is far more difficult to convince some that diet and not medicine is the main factor of treatment. Physicians themselves will often place the very sickest of their infants upon sterilized milk when the infant stomach is in no condition to digest food of any kind. Instead of rest to the stomach, it is burdened with milk; the result is also discouragement. Again, after a baby is perfectly well, the sterilized milk is discontinued by the mother on her own responsibility, though the child is doing very well. This, I have found, is due to an impression in the mind of the mother that the infant has regained health and strength through the administration of the medicines rather than the milk. Such children are frequently returned to take the milk again as soon as relapses favored by bad food set in. We have considered the infants as benefited when the symptoms for which relief was sought had ceased. Many infants during the summer months have increased in weight and strength. Outdoor exercise, excursions, sojourns in sanitariums have aided the results very materially. I consider open-air exercise and the aids, in the form of excursions and sanitariums, placed at the disposal of the infants during the summer months, a very important factor with which we must constantly calculate in these cases. This accounts for the very unsatisfactory results attained with sterilized milk in institutions where the children are not fortunate to obtain this constant change of air and atmosphere which falls to the lot of infants living even in the crowded tenements of the city. In some institutions the facilities, or even the ordinary number of nurses, are not sufficient to give the infants the passive exercise in the open air which is their physiological right. The result is obvious, that the infant only breathes the air of the ward; it is not taken out of its crib. The result even in breast-fed children is unsatisfactory. Such breast-fed children are many of them the waxy, flabby, breast-fed infants so familiar in institutions. In these facts we can see how far-reaching is the subject of infant feeding. I do not consider the problem of infant feeding solved, but certainly our present methods are strides in advance of the old.

In support of my statement that many children receive sterilized milk who would do much better if all milk were excluded for a time, we have only to examine the death-rate list of over six hundred infants supplied last summer with milk sterilized in our laboratory; forty died. Twenty of this number died after the third day of administration of the milk, and thirty during the first week. It can be seen at a glance that these cases were unsuitable ones, and should have been bridged over a critical period of illness with solutions of albuminoids, such as Epstein's solution

of white of egg, until strength returned. Then very small quantities of diluted milk could be combined with beef juice until a full milk diet could be resumed. At a discussion in 1891 upon a very able presentation of the subject of gavage in children, at the American Paediatric Society, by Dr. Kerley, I insisted that, after washing out the stomach according to Epstein's method, the infant should not be fed but in the way prescribed by Epstein—upon albumin water, made by dissolving the white of an egg in a pint of cold water, and straining.

Such a solution is kept upon ice, and administered by the teaspoonful. I have treated children brought to me in the collapsed condition present in genuine cholera infantum. They were kept for forty-eight hours upon such a diet, in spite of the protestations of the mother that the infant would starve. The recovery was brilliant as it was remarkable. Then, and then only, did I think of returning gradually to a milk diet. I have been led to extend these observations because I have seen physicians begin to administer milk to infants still suffering from symptoms of gastro-enteritis. This is a grave mistake. Under these conditions a milk diet is more frequently harmful than beneficial.

The infants who are healthy and from birth have had milk sterilized by the above-described methods show the most brilliant results. Or infants who have had the benefit of the mother's breast at least once or twice a day, in addition to the sterilized milk, thrive very well. Atrophic infants do not increase in weight upon this milk during the summer, but they can be tided over this dangerous period, and later on can partake of more nourishing foods. Such cases can be pointed to by the writer to-day.

To sterilize milk at a safe low temperature in the household is a simple matter. If the cover of the ordinary tin pot is perforated with a number of large openings an inch in diameter, the steam can escape freely in such an apparatus, in which a simple set of bottles and an ordinary pot, ten inches deep by nine inches in diameter, is used. Milk put in when the water is steaming will reach the following temperatures: At an initial temperature of 9° Celsius, milk in such a pot will, in ten minutes, reach 60° C.; in twenty minutes, 89° C.; in twenty-five minutes, 92° C. It is thus seen that, at the most, the whole process should not last over twenty-five minutes. This milk, after twenty-four hours, has a very agreeable taste, and the raw taste can be distinctly detected.

It is sometimes desirable in older children—from a year or a year and a half upward, and who subsist largely upon milk—not to sterilize the milk at all, but to *partially Pasteurize it*. This may be done as follows: The whole quart of milk, or daily supply of such a child, is heated upon the stove carefully in a clean utensil, and, with the aid of a Celsius thermometer, the whole milk is raised (stirring constantly) to 70° C. The milk is kept at 70° to 76° Celsius, stirring all the while, for half an hour. It is then rapidly cooled by surrounding it with ice, stirring all the time, and then placed in a refrigerator. This method is only to be attempted with the most intelligent, and it will be found very satisfactory. The milk does

not taste boiled, and will keep much better and longer than raw milk.

*Note.*—So much has been written on the subject of corking the bottles, notably by Escherich, that I have refrained from extended explanations. If the bottles are corked immediately after steaming, while the milk is still very warm, every purpose of sterilization is subserved. When the vapor condenses above the milk on cooling, a partial vacuum remains. Should a bottle crack subsequent to corking through changes of temperature, air will force its way through the milk to its surface, causing a frothy appearance on the milk. This proves that the corking is efficient. In a large number of bottles, the cracked ones may thus be quickly detected.

## THE TREATMENT OF PUERPERAL INFECTION.

By J. FOSTER SCOTT, B. A. (YALE),

M. B., C. M. (EDIN. UNIV.),

RESIDENT PHYSICIAN, COLUMBIA HOSPITAL, WASHINGTON, D. C.

THERE is scarcely any contingency in the practitioner's round of work of such vast importance as the intelligent perception of puerperal infection and its prompt and rational treatment.

Speaking broadly, there are two kinds of puerperal infection:

1. The kind which is lethal.
2. A less serious and more common type, which is responsible for a countless throng of invalids who suffer with pyosalpinx, pelvic abscesses, exudates, adhesions, misplacements of the pelvic organs, etc.

I treat a puerperal case as septic which, in the absence of any other malcondition, is characterized by elevated temperature, rigors, and offensive lochia. In my experience, all septic cases have had an odor, but this is not invariably to be depended on. Having recognized the condition, treat the endometrium, the torn cervix, or vagina, or perinaeum precisely as you would any open wound. Medicinal and dietetic treatment are of just the same value here as in any open wound elsewhere. Use them as aids, but not reliances.

In my estimation, the intra-uterine douche, as ordinarily given, is inadequate. It is generally considered sufficient to allow a gentle current of corrosive-sublimate solution (1 to 5,000) to flow into the uterine cavity; but this positively will not separate any adherent shreds, and its germicidal action can not by any chance penetrate into the thick, fleshy masses of *débris* which will remain. My method is as follows:

The patient's buttocks are held in position over the edge of the bed, and the vagina is well opened up with a trivalve speculum and thoroughly washed with some antiseptic solution—*e. g.*, lysol, 1 to 100. Then I perform what I designate as a *soft curetting* of the cavity of the uterus by swabbing it out gently by means of a twist of cotton, saturated in peroxide of hydrogen, on an applicator. I use the fifteen-volume solution pure as it comes in the original bottles. The applicator, armed with a fairly large twist of cotton soaked in peroxide of hydrogen, is passed up to the fundus uteri and allowed to remain for a minute or so. It is then removed, and this proceeding repeated several times over, for the peroxide of hydrogen is something like a bee, sting-

ing once and then becoming inert. It intelligently attacks every shred of necrotic tissue, leaving no islands untouched, while it is absolutely nontoxic to vital tissues. Having repeated its application several times over, until I feel sure every part has been reached and all devitalized tissue loosened up, I then irrigate the uterine cavity with corrosive-sublimated solution (1 to 5,000; temperature, 110° F.), using a large-sized glass tube. This washes away all froth and loosened *débris*, and makes assurance doubly sure that you have the genital tract as clean and aseptic as it is expedient to attempt.

In some cases a mercuric, or iodoform, or sterilized-gauze packing clear up to the fundus is indicated. This is better than an iodoform suppository introduced into the cavity of the uterus, as it acts as a drain. Ordinarily it is sufficient to blow into the vagina by an insufflator a powder composed of seven parts of boric acid to one part of iodoform or aristol. If the perinæum is lacerated, employ means to keep it surgically clean by effective antiseptic absorbent pads.

In my opinion, this peroxide of hydrogen is by far the most valuable therapeutic agent which has been placed before us in recent times. Dr. B. W. Richardson, of London, first advocated its use in 1859, but its great expense until recently has delayed its wide introduction. I would refer those who are interested in its use to Richardson's exhaustive articles in the *Scientific American Supplements* for June, July, and August, 1892. It has a wide range of applicability; but for such cases as the subject of this article it is specially suitable. I now abhor any curette in puerperal cases; it is too violent, even when used with the greatest caution; it is impossible by its use to remove every particle of *débris*, and it can not be skillfully used by many general practitioners.

With the os well exposed to view through the speculum, how easy it is to introduce a dossil of cotton saturated with peroxide of hydrogen up to the fundus! No force is needed; necrotic tissue melts down in its presence like snow-flakes under a burning-glass; the froth and loosened *débris* are washed out by a gentle current of mercuric-chloride solution (1 to 5,000), and the genital tract is thoroughly and effectually cleansed.

It is a proceeding which any practitioner can do satisfactorily. In some cases it may suffice to use the simple intra-uterine douche once or twice daily, and only use the peroxide every other day or so, to loosen any degenerating tissue. In my experience, offensive lochia rapidly cease under this treatment.

I frequently employ this *soft curetting* in dispensary gynaecological practice where the old way would have required an anæsthetic and hospital care.

Next in importance to the above-described treatment is keeping the lower bowel empty of feces, so as to have an active vascular and lymphatic pelvic circulation. For an antipyretic I advocate the sponge-bath with alcohol; quinine, partly as a febrifuge, but especially for its tonic effects; ergot to insure expulsion of clots and a rapid involution; ice-bags over the uterus, if there are great tenderness and inflammation; iodine externally if exudates are forming; a

generous diet, with alcoholic stimulants; and a puerperium prolonged until all danger has passed.

If it is to be borne in mind that there is always a damaged surface at the placental site, where the uterine mucous membrane has peeled off, exposing the lymphatic canals, besides lacerations of the cervix, vagina, and pudenda; if infection was early detected, and measures like those above mentioned were adopted to destroy the dangerous colonies of germs; and if the same attention were to be given to the rational treatment of these cases as to other less severe surgical wounds—then there could be no reasonable doubt that thousands of women would pass through a clean puerperium and escape a train of symptoms which so often causes chronic invalidism from pelvic sources and sometimes death.

## RARE FORMS OF LARYNGEAL GROWTHS.\*

By ALEXANDER W. MACCOY, M. D.,

PHILADELPHIA.

In presenting forms of laryngeal growth exceedingly rare in my experience as an individual observer, I am not unmindful that some may prefer to class one of the cases herein reported among the frequent growths seen in the larynx. However, the consideration of these two cases is from the standpoint of my observations, which may be greatly at variance with yours.

The first case is a myxoma which came under my care in the year 1890. This is the first and only case of myxoma of the larynx which I have seen in twelve years' work in laryngology. It has been my fortunate experience to have seen most of the other rare tumors of the larynx. In a very cursory investigation of the subject of myxoma of the larynx I find the statement "exceedingly rare," "very rare" made by every observer excepting Fauvel. In the writings of Sir Morell Mackenzie the statement is made that he had never seen a primary case of myxoma of the larynx. In Ashhurst's *Surgery*, in the article written by Dr. J. Solis-Cohen on Tumors of the Larynx, Dr. Solis-Cohen mentions only four cases seen by him, one of these multiple. Since the time the article was written Dr. Solis-Cohen states that he has not seen another case of the kind. The annals of this society contain a report of a *very* interesting and remarkable case of multiple myxoma of the larynx reported in 1880 by Dr. Clinton Wagner. This case was remarkable in that spontaneous expulsion of the tumors took place at varying intervals, after which a complete cure resulted. In Fauvel's work on the larynx, in his summary of three hundred cases, the remarkable showing is made of fifty-three cases of myxoma. Of these fifty-three cases, I find only three microscopic examinations of myxomas. If this record is accepted, it is certainly remarkable, but if the microscopic test is taken, there are but three cases, in fact, which seems nearer the ratio, found by other observers outside of France. Fauvel also makes the statement that the myxomatous growths are next to papillomata in frequency, and remarks that the number of myxomas shown

\* Read before the American Laryngological Association at its fourth annual congress.



by him to foreign observers at one of his *séances* was greater than these observers had witnessed in many months in their respective countries. The report of my case is as follows:

Mrs. Lena C., aged thirty-nine, four months advanced in pregnancy, had suffered from a defective voice for two years. There was difficult speaking, which was greatly increased from prolonged use of the voice; hoarseness was marked, respiration jerky. She had a slight and frequent cough. No marked embarrassment of respiration and no pain. General condition good. Laryngoscopic examination revealed a tumor on the right side of the larynx as large as a Lima bean and resembling it in shape. The growth appeared to spring from the ventricle of the larynx or from the margin of the orifice of the ventricles, and overlapped the right vocal band, excepting a small portion posteriorly, which was only exposed during phonation. The left vocal band was also covered by the tumor during the phonatory act. The growth was smooth in contour, flattened from side to side, and of a pale, pinkish-yellow color. The capillary network of vessels covering the tumor was plainly visible over the translucent mass. The macroscopic appearance of the formation was precisely similar to that of a nasal myxoma. The growth was easily removed by a Mackenzie crushing forceps. The attachment was seen to have been around the margin of the laryngeal ventricular orifice. The voice immediately became normal, and all laryngeal discomfort disappeared. The microscopical examination showed the tumor to be a true myxoma.

The second case was one of fibroma, which can not properly be considered so rare as a myxoma, yet, in comparison with the frequency of papillomata, must be considered as at least uncommon. Eleven per cent. is given by Mackenzie as the ratio of frequency. Fauvel gives it as five per cent. While I can not give the average percentage of a large number of cases, I am inclined to believe that it would not be over five per cent., possibly less. Individual experience goes for little, and must vary enormously with different observers, according to the position they hold in relation to the profession or the community in which they live. An observer of great eminence as an *expert* will see many more cases of rare and peculiar growths than will one even in large practice in the natural course of observation in ordinary lines of practice. But the *expert's* ratio of rare cases of a *class* would not express the consensus of opinion for the rest of laryngologists. The history of this case of fibroma is as follows:

Mr. G., aged forty, has suffered from tuberculosis for about four years. The tubercular manifestations are well marked in the right lung—cavity, induration, cough, expectoration, etc. During the course of the tubercular infection he had several severe pulmonary hemorrhages and many slight attacks of "spitting blood," continuing up to the present time. From the beginning of this history his voice and respiration have been altered. At the time of examination there were well-marked features of laryngeal tuberculosis, pyriform swelling of the arytenoids, papillomatous vegetations on the left band and over the floor of the larynx. General health remarkably fair, considering his history. Laryngoscopic examination, made when he was first under my care, showed a very complicated and dangerous condition of the larynx. The subject was in imminent danger of death from suffocation. Labored and stridulous inspiration were painfully well marked. Illumination of the larynx showed

the laryngeal cavity completely filled by a large, pear-shaped tumor, smooth in outline, movable, and bright-red in color. The tumor completely cut off all portions of the larynx below the ventricular bands. The attachment appeared to be on the anterior and right surface of the thyroid cartilage and to be chiefly beneath the anterior vocal commissure. How respiration could be carried on at all was an interesting study. The only free space noted was a mere slit between the lowest part of the growth and the floor of the larynx. This slit was formed during expiration by the expiratory blast raising up the growth slightly, and the inspiratory effort was partly accomplished before the tumor was wedged in completely. During phonation the tumor was forced well upward, appearing much larger and tense, as if suddenly inflated. After phonation the growth quickly receded and rested on the ventricular bands and floor of the larynx. The demand for relief was urgent. After weighing well the risks with and without a tracheotomy, I decided to remove the growth without a prior tracheotomy, and to do it at once. Various strong forceps were tried, but none of them would hold or sustain the leverage necessary. I then encircled the growth with a cold steel wire in a Sajsous curved snare, and, after great risk, removed a large portion of the mass, which was very dense and tough. Immediate respiratory relief followed, and all dangerous symptoms were modified. The remaining portion of the tumor will be removed by the galvanocautery snare. The case is under observation. The structure of the growth showed interlacing bundles of dense fibrous tissue, the outer layers composed of thickened layers of mucous membrane.

## THE CAUSE OF EHRlich's "DIAZO REACTION,"

WITH A DISCUSSION OF  
ITS DIAGNOSTIC AND CLINICAL SIGNIFICANCE.

By E. L. MUNSON, B.A., M.D., and HORST OERTEL,  
NEW HAVEN HOSPITAL, NEW HAVEN, CONN.

EHRlich's diazo reaction, originally introduced by him as pathognomonic of typhoid fever, has recently been the subject of so much investigation that the discovery of the etiological factor by the writers will be of general interest, especially as bearing on the clinical and diagnostic importance of this reaction. This test, as commonly practiced, consists in adding 1 c. c. of a five-per-cent. aqueous solution of potassium nitrite to 25 c. c. of a solution composed of sulphanilic acid, 3 grm.; concentrated hydrochloric acid, 25 c. c.; and water up to 500 c. c. To this 25 c. c. of urine are now added, and the whole made strongly alkaline with strong ammonia. Normal urine yields a pale orange-red color on the addition of the ammonia, while certain pathological urines give the deep violet red color characteristic of this reaction. During the past year, while engaged in experimental work upon the various abnormal constituents of diabetic urine, it was noticed that a urine which was known to contain large quantities of aceto-acetic acid, and which struck a Bordeaux red with a solution of ferric chloride (Gerhardt's test), also gave a most marked diazo reaction, these two reactions always running parallel in their intensity.

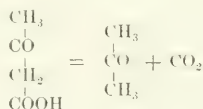
This fact strongly suggested the possibility of some connection between the diazo reaction and one or perhaps all of the abnormal metabolic products so often found in

diabetes and the diazo reaction. The bodies which, according to personal observation, could come into question were aceto-acetic acid, *beta*-hydroxybutyric acid, and acetone—other investigators, however, claiming to have observed the occurrence of *alpha*-crotonic acid and ethyl aceto-acetate. These bodies were all synthetically prepared and studied with reference to the two reactions. The results were as follows:

SUBSTANCE	Diazo reaction.	Ferric-chloride test.
Acetone	Negative.	Negative.
Aceto-acetic acid	Positive.	Positive.
<i>Beta</i> -oxybutyric acid	Negative.	Negative.
Crotonic acid	"	"
Ethyl aceto-acetate	"	Positive

It is seen from the above table that, while both ethyl aceto-acetate and aceto-acetic acid give the reaction with ferric chloride, only aceto-acetic acid gives the diazo reaction. It was further observed that prolonged boiling entirely destroys the reaction given by the addition of ferric chloride to aceto-acetic acid, while the same treatment to the reaction given by ethyl aceto-acetate does not in the least affect it. The physical and chemical properties of aceto-acetic acid were now studied.

It was found to be an odorless, colorless, tasteless, and uncrystallizable body having the composition  $\text{CH}_3 - \text{CO} - \text{CH}_2 - \text{COOH}$ . It is fairly soluble in sulphuric ether, less so in acetic and benzol ethers, and but slightly soluble in chloroform. It is readily soluble in strong alcohol and in water. It is fairly stable in ethereal solution as a free acid, and very stable in an aqueous solution of the barium salt, at variance with the observations of Jaksch.\* It decomposes under  $100^\circ \text{C}$ . in the formation of acetone and carbon dioxide.



It responds to the diazo reaction of Ehrlich and strikes a Bordeaux-red with neutral ferric chloride or ferric sulphate in the cold, these reactions permanently disappearing on boiling for five minutes or on adding a large excess of a mineral acid and then again carefully neutralizing. It yields a precipitate of iodoform on treating with the tincture of iodine and ammonium hydrate, and also on the addition of iodine in potassium-iodide solution with sodium hydrate. It can be readily extracted from an aqueous solution by slightly acidifying with a mineral acid and shaking with ether. If a little of this ethereal extract be evaporated to dryness on a porcelain dish and the residue be touched with a drop of ferric-chloride solution, a purplish red color is produced. On distillation it yields acetone.

With this knowledge of the properties of aceto-acetic acid, the attempt was made to show that the diazo and ferric-chloride reactions always occurred simultaneously in a urine, that both reactions always ran parallel in their intensity, and that the substance in the urine which

yielded these reactions was in all respects identical with aceto-acetic acid. To this end, six cases representing widely diverse diseases, whose urines gave diazo reactions of varying intensity, were carefully examined. The clinical histories of these cases are as follows:

1. *Diabetes Mellitus*.—Patient, thirty-two years of age, had diabetes for about a year, and was under treatment about eight months. He received no medicines except cathartics, the treatment consisting exclusively of a rigid anti-carbohydratic diet. His urine contained large quantities of aceto-acetic acid, and gave intense ferric-chloride and diazo reactions. There was also an extraordinary excretion of ammonia. Patient was subject to constant frontal headaches, loss of memory, vertigo, and insomnia. A sudden attack of pneumonia finally ensued and proved fatal in less than twenty-four hours. Had never any temperature except after the advent of the pneumonia—in fact, the thermometer generally registered a degree or so subnormal.

2. *Comalescence after Eclampsia*.—Patient primipara, twenty-one years old. Labor perfectly normal and of short duration. Six hours after delivery the patient complained of violent headache, nausea, and dizziness. This was followed by a series of clonic spasms intermittent over a period of eighteen hours. The urine contained a large amount of albumin, hyaline and granular casts, with acetone and hydroxybutyric acid in small quantities. During the attacks no diazo reaction could be obtained. The temperature rose temporarily on the third day to its maximum— $101^\circ \text{F}$ . On the ninth day after delivery, with a perfectly normal temperature, an intense diazo reaction was observed and continued for six days. No oxybutyric acid was present during this period. Drugs employed were pilocarpine and citrate of caffeine. Patient made a good recovery.

3. *Typhoid Fever*.—Patient a girl of eighteen years. No medication except quinine, digitalis, and aromatic spirits of ammonia in tonic doses. The hydrostatic ice-coil was employed as the antipyretic. Temperature was persistently high and controlled with difficulty. During the second week of the disease, with a temperature of  $104.2^\circ$ , a strong diazo reaction appeared and persisted some days, although during that time the temperature fell to  $101^\circ$ . Patient's pulse was weak and rapid. Patient made a good recovery.

4. *Traumatic Fever*.—Patient, a man of thirty-five years, had a dermoid cyst of the abdomen for which a double laparotomy was performed. On the third day after the operation, with a temperature of  $101.4^\circ$ , a diazo reaction could be obtained from the urine and persisted for five days. Pulse 100 and weak. Patient complained of vertigo and headache. No drugs were employed. Patient died from exhaustion five weeks after the operation.

5. *Chronic Phthisis*.—Patient, a man of twenty-seven years, had had a cough for about a year and lost weight rapidly. A physical examination showed a large cavity in the upper lobe of the left lung. Patient had a temperature of  $101^\circ$ . The diazo reaction was not constant. Patient had no cerebral symptoms whatever.

6. *Unlabeled (Cerebral Softening—Syphilitic?)*.—Patient, a man of thirty-four years, has been in hospital for nine weeks. A physical examination shows nothing abnormal. Pulse slow and weak, 54; temperature always subnormal, at times  $96.4^\circ$ ; respirations irregular and variable. The patient appears very weak and lies in a semi-comatose condition from which he is with difficulty aroused. The urine contains large quantities of ammonia, and at times gives a marked diazo reaction. It also intermittently contains small amounts of oxybutyric acid.

\* *Ueber Acetonurie und Diaaceturie*. Berlin, 1885.

The urines of the above-given cases were now carefully compared with an aqueous solution of the barium salt of aceto-acetic acid, with the following results:

	Ferric-chloride reaction.	Diazo	Reactions disappear on boiling or strongly acidify.	Iodoform tests.	Acetone in distillate.	Extract with ether.	Ethereal extract gives ferric chloride test.
Aceto-acetic acid.....	Positive.	Positive.	Positive.	Positive.	Positive.	Positive.	Positive.
Diabetes.....	"	"	"	"	"	"	"
Post-ecclampsia.....	"	"	"	"	"	"	"
Typhoid fever.....	"	"	"	"	"	"	"
Traumatic fever.....	"	"	"	"	"	"	"
Chronic phthisis.....	"	"	"	"	"	"	"
Cerebral softening (?). .....	"	"	"	"	"	"	"

From the above-given cases, which responded in every particular to the tests for aceto-acetic acid, the writers feel justified in announcing that this body is the etiological factor in the production of the diazo reaction in pathological urines. This acid probably occurs, in the majority of instances, in combination with ammonia.

With regard to the diagnostic and clinical significance of this reaction it is evident that it must be identical with that of the ferric-chloride test. The following table is elaborated from a series of experiments made by Edwards \* upon the occurrence of the diazo reaction, and illustrates in what extremely diverse processes aceto-acetic acid may be produced:

DISEASE.	No. of cases.	Reaction present.	Reaction absent.
Typhoid fever.....	130	122	8
Enteritis: febricula.....	19	6	13
Malaria.....	5	3	2
Tuberculosis.....	32	27	5
Rheumatism.....	10	3	7
Nephritis.....	18	11	7
Diabetes mellitus.....	2	2	0
Carcinoma.....	4	3	1
Syphilis.....	5	2	3
Cardiac lesions.....	8	6	2
Lung (except tuberculosis).....	8	5	3
Plumbism.....	4	1	3
Cerebral hæmorrhage.....	3	2	1
Septicæmia.....	3	3	0
Chronic arthritis.....	2	1	1
Cirrhosis of liver.....	3	1	2
Jaundice (simplex).....	1	1	0
Acute intestinal obstruction.....	1	1	0
Intussusception.....	1	1	0
Abscess of liver.....	1	1	0
Neuritis.....	1	1	0
Alcoholic gastritis.....	1	1	0
Purpura hæmorrhagica.....	1	1	0

Brouet † has examined the urines of one hundred and fifty children relative to the reaction produced on the addition of ferric chloride, and found that this test could be obtained in sixty-three cases.

Of these sixty-three cases in which a reaction could be obtained, only three were entirely apyretic. Brouet believes that the ferric-chloride reaction is common in childhood, does not occur uniformly in all febrile conditions, and bears no relation in its intensity to the intensity of the pyrexia.

\* *Medical News*, April 2, 1892.

† *Revue médicale de la Suisse romande*. Geneva, September 20, 1890.

DISEASE.	No. of cases.	Reaction present.	Reaction absent.
Pneumonia.....	28	10	18
Pleuritis.....	6	0	6
Measles.....	26	16	10
Scarlatina.....	34	27	7
Erysipelas.....	4	4	0
Diphtheria.....	31	11	20
Various suppurative diseases.....	13	2	11
Typhoid fever.....	4	2	2
Pulmonary tuberculosis.....	6	0	6
Tubercular meningitis.....	4	2	2
Pertussis.....	6	0	6
Rhachitis.....	2	0	2
Chlorosis.....	2	0	2
Perityphlitis.....	1	1	0
Parotiditis.....	1	0	1
Mitral disease.....	1	0	1
Extensive burn.....	1	1	0
Acute nephritis.....	13	0	13
Osteosarcoma.....	1	1	0

Von Jaksch \* finds the ferric-chloride reaction given in the following cases:

DISEASE.	No. of cases.	Reaction present.	Reaction absent.
Measles.....	8	6	2
Scarlet fever.....	6	2	4
Typhoid fever.....	40	1	39
Pneumonia.....	35	2	33
Otitis media.....	1	1	0
Miliary tuberculosis.....	1	1	0
Varicella.....	1	1	0

Seifert † obtained the same reaction from the urine in pericarditis, in nine out of fifteen cases of typhoid fever, and in twelve out of forty cases of pneumonia. He also observed it in röteln, perityphlitis, acute miliary tuberculosis, and phthisis pulmonalis.

Investigations by the writers as to the occurrence of the diazo reaction have resulted as shown in the following table.

From these observations, therefore, it would seem well established that the presence of aceto-acetic acid—as determined by either the ferric chloride or diazo reactions—is not associated with any particular affection, and, although observers are not as yet agreed on the question of its being an almost constant concomitant of typhoid fever, its very frequent occurrence in the urines of various processes would tend to neutralize any diagnostic value which it might otherwise possess. We are justified in denying

\* Von Jaksch. *Ueber Acetonurie und Diaceturie*. Berlin, 1885.

† *Ueber Acetonurie*. *Verhandlungen d. physikalisch-med. Gesellsch. in Würzburg*, V. F. xvii, Bd. 4.



DISEASE.	No. of cases.	Reaction present.	Reaction absent
Typhoid fever.....	13	6	7
Pneumonia.....	1	1	..
Diabetes.....	3	2	1
Eclampsia.....	1	1	..
Fever following operations.....	4	2	2
Cerebral softening, syphilitic.....	1	1	..
Pluritis.....	2	1	1
Cystitis.....	3	1	2
Phlebitis.....	2	1	1
Chancous infection.....	1	1	..
Tuberculous arthritis.....	1	1	..
Caries of vertebra.....	3	1	2
Variola.....	1	1	..
Varicella.....	3	3	2
Psoriasis vulgaris.....	1	1	..
Acne.....	1	1	..

that the occurrence of aceto-acetic acid is of greater diagnostic importance than the excess of phosphates or the trace of albumin with which it is so frequently observed.

As to its clinical significance. Aceto-acetic acid is not essentially a fever product. The original idea that the diazo reaction was a result of high temperature is wrong. Aceto-acetic acid in its production bears no relation to the temperature, and it is even produced in the greatest quantities in diabetes—a disease in which the temperature is, if anything, subnormal. It is rather to be considered as a product of incomplete oxidation than of excessive catabolism, but upon what conditions this incomplete oxidation depends is as yet unexplained. With regard to the prognosis it will be observed that aceto-acetic acid, as a rule, is present only in the urines of grave affections. It is in itself of but insignificant importance in the quantities in which it is generally present in fever urines, and it is only when present in the extraordinary quantities found in certain cases of diabetes that it becomes a factor of pathological importance, acting not through any toxic properties in itself, but merely by virtue of its acidity—i. e., its affinity for alkalies, by which the sodium and potassium compounds of the body are attacked. To an excessive blood acidity are without doubt to be ascribed the cerebral disturbances and neuroses of diabetes and possibly a few other affections in which it may occur in quantity, and a recent treatment of diabetic coma by the intravenous injection of strong alkaline solutions\* is based upon this idea of an "acid intoxication."

## DIVISION OF THE TENDO ACHILLIS:

TENOTOMY.

By HENRY THORP, M. D.

THE rarity of this accident, together with the ease with which an otherwise serious condition can be relieved and an excellent result obtained, warrant this report.

On January 9th M. G. was brought into St. Luke's Hospital from his club with the history of having been struck above the right heel by a piece of glass from a burst soda-water bottle. The glass had cut through trousers and shoe and caused some bleeding, but he did not realize the injury until attempting motion. He was seen by a physician, who fastened the knee in

position of flexion and ankle in extension and ordered him to hospital. Examination revealed a transverse incised wound two inches and a half above the heel and about two inches in length. Depth not ascertained, it not being thought advisable to probe. There was a break in tendon outline at point of incision and the upper fragment could not be felt.

Temporary dressing applied and patient ordered to operating room, where, by the kind permission of Dr. Curtis, to whose service the case came, I operated, making an incision upward, when a short dissection showed the retracted fragment, which was dragged down. The tendon was sutured with one heavy silk suture passed twice through each fragment about a quarter of an inch from divided edge and acting as a "retention suture," and the edges approximated by several fine interrupted silk sutures. External wound closed and dressing with plaster from toes to thigh applied to maintain position. Patient remained in bed until January 30th, when first dressing done; primary union throughout. Power at ankle present. Starch bandage now applied and patient allowed crutches, but forbidden to use foot. On February 10th all dressings were removed and patient allowed to walk. Power and motion perfect.

Four months later, except for the minute scar, it was impossible to say which leg had been injured.

41 WEST EIGHTY-SECOND STREET.

## ALOPECIA PRÆMATURA:

ITS MOST FREQUENT CAUSE ECZEMA SEBORRHOICUM.\*

By GEORGE T. ELLIOT, M. D.,

VISITING DERMATOLOGIST TO THE DEMILT DISPENSARY AND THE NEW YORK INFANT ASYLUM;  
ASSISTANT VISITING DERMATOLOGIST, NEW YORK SKIN AND CANCER HOSPITAL;  
LECTURER ON SKIN DISEASES,  
NEW YORK POST-GRADUATE MEDICAL SCHOOL, ETC.

To judge by my experience, the subject of alopecia præmatura, or falling of the hair in early life, notwithstanding its great importance and interest, receives little or no attention from physicians in general. The condition is regarded by them as irremediable; the sufferers are allowed to lose their hair gradually and surely, or they are relegated to the extremely dubious care of hair-dressers, artists, or whatever they wish to call themselves, who, alike ignorant of what a skin or a hair really is, of the laws governing the health of each, and of the diseases which may affect both, only succeed in accelerating the alopecia and in intensifying the already existing pathological state. Without doubt, the inattention paid to the subject is due to the fact that alopecia is generally regarded as the outcome of some unknown cause; it is not appreciated that many conditions favor or predispose to its development; it is not understood that not one, but a large number of causes and diseases, differing widely from each other, may be its active producers; and in evidence of this I would preface the results of my own observations and studies by a brief résumé of the various causes, etc., to which it may owe its origin and existence.

Congenital and senile alopecia require only mention, the former being rare and due to a scanty supply or to an entire absence of hair bulbs; the latter being only a part of the general atrophy of the skin occurring with advancing

\* Minkowski. *Deutsch. med. Wochenschr.*, May 11, 1889.

\* Read before the American Dermatological Association, at New London, September, 1892.

age, and representing what has been so aptly termed by Dr. Holmes "retrogressive evolution."

Alopecia præmatura, however, which develops irrespective of age, is of especial importance, as it constitutes the bulk of cases in regard to which advice is sought. It may be idiopathic in origin, no local or general cause being discoverable, but there is observed only an excess in loss over the regeneration of the hair; or it may be in some instances hereditary; again, the alopecia may depend upon some morbid state of the general system, constitutional or hygienic, and in the great majority of cases upon some purely local cause. As is well known, alopecia occurs in an acute form in the course of or during the convalescence after the eruptive fevers—scarlatina, measles, variola, typhoid—or it develops during pregnancy or after its termination; or again it is the result of the reception of violent nervous shocks, or it follows upon intense prolonged anxiety.

On the other hand, the process occurs in a more chronic form owing to bad hygiene and injurious procedures, or it may arise from debility, excesses of various kinds, cares, anxieties, intellectual work, etc. Neuralgic headaches appear to exert also a considerable influence, according to my observations, the alopecia frequently occurring in an acute manner over the distribution of the nerve or nerves which had been the seat of the pain. After such an attack the hair is usually regenerated; but if the neuralgia is of long continuance or its attacks are repeated and at short intervals, then the hair becomes more and more thinned and a large portion is permanently lost. I have never, however, seen complete baldness result from this cause, but in a few cases of long duration there were areas on the scalp, situated over a nerve branch, perhaps half an inch to an inch in length and a quarter to half an inch broad, entirely denuded of hair and presenting also complete atrophy of the skin.

Alopecia præmatura may also develop in the course of chronic intoxications, such as diabetes, leprosy, syphilis, cancer, etc. There is not the slightest doubt but that these conditions do produce alopecia, yet, in my opinion, it is a matter open to question whether they act *always* and in every case *per se* and are the sole and unique cause of the hair loss, or whether their rôle is not frequently that of favoring and predisposing to the development of one or another of the local processes or diseases which directly influence the growth and health of the hair. In other words, patients may suffer from alopecia as the direct outcome of these intoxications, but they may also present the same condition as the result of causes totally distinct from these systemic diseases, and I am led to make the statement owing to the fact that I have so frequently found local disturbances directly causative of alopecia present upon the scalps of patients affected with the general processes mentioned.

The local diseases which produce alopecia are of various kinds. Brocq has very happily and aptly put it in stating that in some the alopecia is only an accessory feature, while in others it constitutes the major symptom. Among the former there may be mentioned such diseases as eczema,

psoriasis, dermatitis exfoliativa, various inflammatory, atrophic, and ulcerative processes, etc., while among the latter pityriasis capitis, so-called seborrhœa sicca, various conditions termed seborrhœa, keratosis pilaris, alopecia areata, tinea tonsurans, favus, etc.

Allow me to turn now to my own personal observations and study of the subject, which may perhaps be of some interest, as they cover a period of a number of years and a large number of cases. There were several questions suggested by these latter, and for their elucidation an analysis of a certain number has been undertaken.

The questions were:

1. Whether in the production of alopecia præmatura local causes or constitutional and systemic influences and factors were the most frequent in operation.

2. What form of local disease was most usually productive of the loss of the hair.

3. General considerations and facts derived from and suggested by my own observations.

The material which I would make use of in this paper I would limit to those cases which I have treated during the last two years and a half that I have paid especial attention to the subject. The total number seen during that period was 512. Of these, 234 were in private practice, the remainder in my various hospital services. My analysis and further remarks will, however, have reference entirely to the former—the 234—for the reason that from private patients more accurate histories were obtainable and a more satisfactory investigation and supervision of each was possible. From the 234 there have been excluded as not germane to the subject all instances of tinea and favus, as well as those alopecias due to atrophic or ulcerative processes of one kind and another.

Of the total number, 111 were males and 123 females. The origin and causation of the process was found to be due to the following factors:

Alopecia areata (males, 7; females, 1).....	8
Congestion of the brain (female, 1).....	1
Excessive intellectual work (males, 4).....	4
Syphilis (males, 2).....	2
Frequent, severe, and prolonged headaches and neuralgias (females, 3).....	3
Anæmia, neurasthenia, and debility (males, 2; females, 1).....	3
Scarlatina, typhoid fever (males, 2; fe- males, 2).....	4
Idiopathic, without apparent cause (male, 1; female, 1).....	2
Alopecia from purely local processes (males, 93; females, 111).....	207
Total.....	234

The analysis of my cases thus shows that 2, or 0.85 per cent., occurred without apparent cause; 25, or 10.68 per cent., were due to general systemic and constitutional conditions, etc.; while 207, or 88.46 per cent., were the result of purely local processes and disturbances on the scalp. According to my own experience, therefore, it is these latter that predominate by an immense majority in the produc-

tion of alopecia præmatura, while the effect of the systemic factors constitutes a very small proportion of the whole. It appears to me, therefore, unnecessary to discuss in detail this minority, but rather to put it aside and to particularly consider the majority, as it represents those cases seeking aid; it constitutes a class easily recognized and one susceptible of either great improvement or of entire cure when subjected to proper treatment.

The nature of the local disease productive of the alopecia in every one of my 207 cases was some grade of what has lately come to be designated, whether rightly or wrongly does not concern us here, *eczema seborrhoicum*. That is, the clinical symptoms were such as were and are still known as *psoriasis capitis*, alopecia pityrodes, *seborrhea sicca*, or, progression to a higher grade having occurred, there were associated with the phenomena mentioned more or less extensive areas and circumscribed patches of redness covered with squamæ, or crusted, or presenting more or less evidences of weeping. It is unnecessary to describe in detail the symptomatic appearances of the phases of disease mentioned, they are so well known, and I have, moreover, already delineated them in a previous article\*; but I would state that the majority of the cases presented only the symptoms belonging to alopecia pityrodes, while a large number would be described as *seborrhea sicca*. In some the incrustation over the scalp was yellow, soft, and greasy from the admixture of fat; in others there was a complicating *seborrhea oleosa*. Besides these symptoms there were also, in many cases, patches of redness of various size, circumscribed, sharply defined, not elevated, which were glistening, or scaly, or crusting, or showing a few points of weeping, or diffusely moist. Subjectively, itching was frequently complained of, it being, however, moderate, coming on when the patient was heated; occasionally it was severe and distressing. Nothing particular was observed in connection with the hair itself except that, when there was not a complicating *seborrhea oleosa*, it was dry, lusterless, and in women, especially, split at the ends, brittle, and easily broken. There was also a tendency for them to become gray and even white.

The large majority of these cases presented, in addition to the scalp symptoms, manifestations of the disease upon some other portion of the body—face, ears, etc. They had disregarded the scalp trouble, they had considered it as a natural condition, they had never associated the alopecia with it, but looked upon the loss of hair as an unfortunate but irremediable circumstance, and it was only this extension of the process to the face which finally compelled them to seek advice. Were it not that the disease remains localized entirely upon the scalp in only a small proportion of the cases, there is no question but that, owing to the beliefs prevalent among the laity, a very much smaller number of instances of alopecia would have come under my notice, but, the opposite being the case, patients were continually seen who were losing their hair rapidly, yet were concerned only about their faces, and as long as the symptoms on these surfaces were removed they accepted with entire resignation

advancing baldness. The duration of the disease upon the scalp before the inception of the alopecia was variable. In some the local process was acute in character, the loss of hair beginning a few weeks later; in the majority it began in from one to two years after the development of the local disease, but in some this latter had existed five, ten, and even more years before causing any distinct or marked alopecia.

Making an analysis of the 207 cases according to sex, it was found that there were 114 females and 93 males. The generally accepted belief is that men are more subject to alopecia præmatura than women are, and though the question is not one of very great importance, yet it is of some interest to find the opposite to be the case, since it shows that the effects of the same causes are the same in both sexes and almost to an equal degree.

Of greater importance is the tabulation of the patients according to their ages:

TABLE OF AGES.

	Males.	Females.	Total.
10 to 20 years.....	2	13	15
20 " 30 " .....	44	54	98
30 " 40 " .....	34	32	66
40 " 50 " .....	10	8	18
50 " 60 " .....	3	6	9
60 " 70 " .....	..	1	1
	93	114	207

We thus find that the largest number of patients (98) were between the early ages of twenty to thirty years, and the next largest (66) between thirty and forty years—that is, in these two decades there were 164 cases, or 79+ per cent. of the whole number. The occurrence of fifteen cases between ten and twenty years, of whom the youngest was fourteen years of age, is particularly worthy of note, and though the ten between sixty and seventy years might be considered as due to senile changes, yet to my personal knowledge these patients had abundant hair until after the development of the local disease. The fact that 113 cases were below the age of thirty years certainly tends to demonstrate the excessive influence of the local disease in the production of alopecia, and if we add to the number those 66 occurring between thirty and forty years, we have a surprising total of 179 cases in 207, which offered no other explanation for their existence except some one grade of *eczema seborrhoicum*. I would repeat that these results obtained by the analysis throw into the strongest possible light the enormous rôle that this local process plays in the causation of alopecia præmatura, especially as in all of these cases every other cause for the hair loss could be and was excluded. Atrophic changes, analogous to those taking place in old age, can not be said to occur in the early ages mentioned; systemic or constitutional causes or disease in general could all be excluded, and, in fact, nothing could be held responsible for the alopecia except the local phenomena mentioned, and it may be further stated as corroborative evidence that the alopecia would cease when the local disease was removed, but would not be influenced by any other mode of treatment.

There is not very much to say in regard to the pathology



of this local process on the scalp beyond stating that the work done by Dr. Unna and his collaborators in his laboratory has demonstrated, if not as yet absolutely and definitely proved, that micro-organisms play a most prominent part in the production of eczema seborrhoicum, and that the disease is in all probability a parasitic one. I have nothing to add to this myself, not having had the opportunity or time for carrying out the extensive work necessitated by this portion of the subject. The pathological anatomy of the several grades of the process has been studied by me, but before referring to it I would mention certain facts derived from the study of the ætiology of my cases which have reference to their causation and mode of origin. Functional disturbances of the health did not appear to play any part in the production of the process. Many of the patients suffered from constipation, or gastric or intestinal dyspepsia, or menstrual disturbances of one kind or another, but neither their presence nor their removal was followed by the slightest change in either the disease or the consequent alopecia. In many instances, however, general diseases, which caused the patient to be kept in bed for some time, parturition, etc., were apparently predisposing causes—not, in my opinion, *per se*, but only in so far as they led to neglect in the care of the scalp and thus allowed the process to develop. The patients included in this category were able to trace the inception of the disease on the scalp to such occurrences, they having previously been entirely free from its manifestations. The effects of occupation were likewise exerted in the line of predisposition. I have found, in studying eczema seborrhoicum as a whole, that the immense majority of cases were among those whose work or occupation or state in life obliged them to be in rooms which were poorly ventilated or dusty or overcrowded, while those who lived under opposite conditions—that is, more in the open air—were infrequently affected. The effects of these conditions were rendered apparent by comparing the number of cases seen during the cold months, when poor ventilation prevails, when windows and doors are kept closed and artificial heat is used, when there is diminished frequency in bathing, washing, etc., with the number presenting themselves during the warm months, when the opposite conditions are in force. The proportion was as 4 is to 1 in a total of 824 cases of seborrhoic eczema seen during a period of four years. Under such circumstances it certainly seems to me that the conditions named above favor the development of the disease.

In late years it has been frequently alleged that the continual wearing of stiff hats caused alopecia, and my patients were carefully examined in regard to this question. Among them there were wearers of soft and of hard stiff hats, but in none could the hat be accused as the direct cause of the alopecia, for the reasons that in every case some grade of seborrhoic eczema was present, and in none did the falling of the hair begin until that disease had developed and existed for some time. It can not, moreover, be imagined upon what basis such a theory could stand. If the arterial supply of the scalp be examined and the situation of the arteries be observed, it can not but be apparent that, for the blood supply to be interfered with, a man

would have to wear a hat so tight that the pain from the compression produced by it would be unbearable. Furthermore, the occipital arteries are the most deeply seated and least exposed to compression, and branches from them supply the crown of the head, or that portion of the scalp which, in the majority, is first affected by the alopecia; or, in other words, the part of the scalp least exposed to circulatory disturbances is the first to suffer from alopecia! What, then, becomes of this theory under these circumstances? On the other hand, it must, however, be granted that the constant wearing of a hat may act as a predisposing cause in so far as increased warmth, moisture, poor ventilation, etc., would result from such use, and produce conditions which would favor the development of local disease. It appears to me that in such cases the same conditions exist as have been observed very frequently by me in those women who coil and mass their hair over the occiput. The heat of this surface was always perceptibly increased. It was moist, and I have invariably found here eczema seborrhoicum in a severer grade than on other portions of the head, whereas it has been most exceptional and only in severe generalized cases that the same surface was found affected in men.

A large number of my patients, especially men, maintained that their alopecia was hereditary in origin, and the question received careful attention. Without wishing to deny the possibility of such being the case, I must confess that, in my experience, it must be very exceptional. In not one of my cases could the statement be substantiated, but, on the contrary, every one of those who alleged that mode of origin was a sufferer at the time of consultation from seborrhoic eczema. Furthermore, they were induced, when it was possible, to bring their parents to my office, and in every instance these were found by personal examination to have likewise had for years, and to still have, the same scalp disease as their children had.

Frequent observation of such association would naturally suggest the possibility of contagion, and many facts have come under my notice which, clinically, strongly suggested the probability of the disease being, to a certain degree, contagious. The possibility of such being the case is not advanced by me as anything new, for, some years ago, Lassar claimed to have demonstrated by experiment that pityriasis capitis and alopecia pityrodes were contagious; but I would mention six of my patients who developed the disease after using the hair brushes of friends with whom they were staying at the time and who were sufferers from the process. A very frequent history also furnished me was that of two persons who had been married a short time. The one had had the disease for a long time before marriage, the other not, and yet at the end of a few months the previously unaffected individual was also a subject of the process. Furthermore, parents, sufferers from the disease for years, would bring one, two, or more of their children who had developed the same affection, one after another. My friend Dr. Dyer, of New Orleans, has recently told me of an instance of this sort which came under his notice, and which I give as evidence of the frequency of such occurrences when observed by the trained

dermatologist. The father and mother had eczema seborrhoicum and alopecia of a severe grade for several years. They had three children; one, three years and a half of age, had the same disease generalized over the scalp; the next, two years of age, presented discrete patches here and there; the youngest, four months old, had already developed one patch on the occiput. It is also interesting to note that many women traced the inception of their trouble to their first visit to some one of the many hair dressers in existence, they having previously been entirely free from it. In my experience, hair dressers and barbers have proved to be the most prolific source of dissemination of the disease, owing to their indiscriminate use of the same brushes, etc., their want of cleanliness, the manipulation by them, one after another, of healthy and diseased scalps—all conjoined with an absolute ignorance of what skin and hair are and to what diseases each is subject. Dr. Dyer again gives me a case in point. He was a subject of the disease and of alopecia for years. He was cured by proper treatment, and remained well for eighteen months. While in Paris, in July, 1892, he went to a barber, who used his brushes, etc. At the end of four days the doctor observed the redevelopment of the process on his scalp. The facts to which I have called attention are certainly, I confess, entirely clinical, but yet they appear to me to be very suggestive and to furnish some basis for a belief in the contagiousness of the disease.

A question of more than ordinary interest in regard to these cases is that of their prognosis. What may be expected from their treatment? Can regeneration of the hair ensue after a cure of the local disease has been obtained? Of course, the prognosis will vary according to the conditions existing in each individual case, yet, to judge by my experience, the outlook in a large proportion of patients is a good one. If baldness even has occurred, but in an acute manner—in a few weeks or months—regeneration of the hair may be expected; but if this condition is the result of the disease running a slow and chronic course, then, of course, nothing can be obtained. In the great majority of the cases the process is chronic in character, and the alopecia is gradual and slow in development. The prognosis, under these circumstances, will have to vary according to the age of the patient, the stage of the local disease, and the length of time the alopecia has lasted. The younger the patient, the shorter the duration of the process, the better the prognosis will be, but, even in full adult life, a great deal of aid can be given, and I may say, on the whole, that removal of the disease by proper treatment is almost invariably followed by cessation of the alopecia, and though a complete regeneration of the hair may not be possible, still it may be obtained in part, or, at any rate, what still remains may be preserved to the patient.

In the first part of my paper I stated that the various stages of disease present in my cases—the pityriasis capitis, alopecia pityrodes, seborrhœa sicca, etc.—represented only grades and phases of the process designated to-day eczema seborrhoicum. Without entering upon a discussion of the appropriateness or inappropriateness of the term, I would add here that my conception has been based not only

upon the clinical features and course of the process, but also upon the microscopical study of its lesions. The clinical portion of the question has already been treated of by me in a paper published in 1891, and I will therefore confine myself here to the anatomical portion of the subject. I was fortunate enough in public practice to obtain from the scalp portions of skin the seat of pityriasis capitis, alopecia pityrodes, and seborrhœa sicca, as well as specimens from those cases in which distinct eczematous symptoms were present. As we all know, the question of the source of the squamæ present in the first three clinical processes referred to, whether they are from the epidermis or from the sebaceous glands, has long been a subject of controversy, and though it has been studied by many of our eminent dermatologists, yet a unanimity of opinion has not even to-day been attained. As far as my study of the literature of the subject has been possible, it appears to me that the association of the clinical symptoms with the sebaceous glands was first made by Hebra, Sr. Before him, the squamæ were considered as epidermic in character, and I have not been able to find any mention of a seborrhœa sicca prior to his writings. His influence in dermatology has been so wide-reaching that though his claims were based upon the examination of the scales alone and the demonstration of the presence of a large amount of fat in them, yet they were immediately accepted and are still in force, so that our text-books, for the most part, make pityriasis capitis and seborrhœa sicca more or less synonymous terms and a functional disease of the glands. I do not mean thereby to say that the question has not been studied and investigated since the time of Hebra. On the contrary, in this country Piffard and others have done so and maintained that the squamæ were epidermic in source; but yet their investigations were limited to the scales scraped from the surface only, and for that reason could not be regarded as conclusive. To myself it has always seemed an impossibility to decide the question by the examination of squamæ alone, and, according to the shape of the cell or the degree of fat present, to determine that they were or were not epidermic in origin; and my investigations have, therefore, been made upon sections of the entire affected skin.

The portions removed from the scalp were in each instance cut into two pieces, one of which was hardened in alcohol and the other in a one-per-cent. osmic-acid solution. The alcohol preparations were mounted in celloidin and the sections were stained in borax carmin or with hæmatoxylin and examined in balsam. The osmic-acid specimens were, however, mounted in wax, cut with the microtome, wet with water, and placed immediately in glycerin, alcohol at no time coming in contact with the sections. For brevity's sake, I will give only the principal and important features seen under the microscope, beginning with the alcohol specimens.

In pityriasis capitis and alopecia pityrodes substantially the same changes were present, what differences existed being of degree, not of character. The horny layer of the epidermis was somewhat thickened, loosely coherent, and separating easily into layers. About and in the fol-

licular openings it was much increased, evidently hyperplastic, and, in the case of the hair follicle, almost choking it up with loosely adherent masses. In *seborrhœa sicca* the changes were exaggerated in degree, the horny epidermis piled up, the hair follicle in its upper third so filled up with the horny masses that it was dilated to a considerable extent and funnel-shaped, while the hyperplastic epidermis was wrapped and twisted around the projecting hair shaft for some distance outside of the follicle. The rete in *pityriasis* and *alopecia pityrodes* showed slight changes, there being only a few vacuoles in the lower layers and some wandering cells in the intercellular spaces. It was not increased in thickness. In *seborrhœa sicca* a few more vacuoles, a few more wandering cells, but no other difference.

In the cutis proper, inflammatory infiltration of small round cells was seen about the vessels in the papillæ in *pityriasis*, the ascending branches from the subpapillary plexus were in addition and to a slight extent similarly surrounded in *alopecia pityrodes*, while in *seborrhœa sicca* the inflammation had extended to the subpapillary plexus, and even a little lower. The sebaceous glands in all were apparently perfectly normal. In those grades where decided eczematous symptoms had been present—that is, where redness, crusting, or weeping had been noted—the cutis was slightly edematous (as was seen in specimens hardened in Fleming's solution); it was densely infiltrated in its upper half, but in the lower half the masses of cells were situated only about the blood-vessels. In the rete there were many vacuoles and wandering cells and mitoses. Here and there were subepidermic vesicles of small size, and the epidermis itself was thickened and either loosely adherent, showing some number of nuclei still staining well, or formed dark-colored crusts. The sebaceous glands were normal in appearance, but surrounded by the inflammatory infiltration, which in many places was also seen about the coiled glands.

From these features presented by my sections I believe that I am justified in drawing the conclusion that in all these various clinical processes examined we have to deal with an inflammatory process of the skin which in its lightest grade—*pityriasis*—is slight and superficial, but which, as it progresses into higher grades, becomes more extended until it finally implicates more or less the entire cutis. As a result of the inflammation of the cutis, we find in all stages a hyperformation of horny epidermis, especially about and in the follicular orifices, a hyperplasia more or less proportionate to the degree of inflammation in the corium.

When we turn to the osmic-acid preparations—an acid which, as is well known, stains fat black—we find that in the sections from *pityriasis capitis*, *alopecia pityrodes*, and I would particularly specify *seborrhœa sicca*, and also in the higher grades where distinct eczematous symptoms were present, the sebaceous glands were stained in their entirety a deep uniform black. In proportion to the grade of the process, the same color was present either to a marked extent between the hair shaft and the masses of epidermis filling up the follicular openings, or it was dimin-

ished to a narrow line—in *seborrhœa sicca* immediately about the hair. In the slightest grades the black staining was also found between the masses of horny tissue filling up the follicle and also permeated to some extent the upper layers of the external epidermis. In *seborrhœa sicca*, in which the horny masses filling up the follicle were much denser and more coherent, this fat infiltration was not seen and the staining was very slight on the external surface. In the higher grades substantially the same appearances were noted, except that when a *seborrhœa oleosa* complicated the process the entire follicular opening, the horny epidermis, and a good part of the rete showed the characteristic black color.

From my microscopical studies of the various clinical grades of disease included in this paper, I believe I may say that on the one hand we have an inflammation of the skin which varies in degree and extent proportionately with the severity of the objective symptoms, and which has as a result a hyperproduction, a hyperplasia of the horny epidermis, especially in and about the follicular orifices, which are more or less choked and filled up.

On the other hand, as shown by the osmic-acid sections, the sebaceous glands are filled with fat, which passes through the ducts into the follicles, the amount so passing varying according to the degree in which the follicles are choked up by the epidermic hyperplasia.

Under these circumstances—the epidermic hyperformation, the glandular secretion unchanged, but only mechanically prevented of egress—what other conclusion can be arrived at but that the squamæ and scaling seen in the several clinical processes referred to owe their origin to the hyperplastic epidermis and in no way to a cornification of the cells of the sebaceous glands, or to the fact that these have not undergone fatty degeneration? I do not for my part see any other possible conclusion, especially when under the microscope the loose coherence and the splitting off of the horny epidermis between the follicular orifices was easily and readily seen; and when by treatment the follicular plugs were removed and the mechanical interference with the egress of the fat secretion was done away with, it was then clinically seen that the dry, lusterless hair became soft, glossy, and oily, and that occurring when neither oil, grease, nor fat of any kind had been used.

From the clinical analysis of my 234 cases of *alopecia præmatura* and the microscopical study of the several grades of the local process present in the 207 particularly treated of in my paper, I would allow myself to draw the following conclusions:

1. Constitutional and systemic conditions may be causative of *alopecia præmatura*, but only in a great minority of the cases which come under observation.

2. The overwhelming majority are due to the local processes which are known as *pityriasis capitis*, *alopecia pityrodes*, *seborrhœa sicca*, and the higher grades to which these may progress by increase in the inflammatory symptoms.

3. All of these severally described forms of disease are merely stages and grades of the process known to-day as the *eczema seborrhoicum* of Unna.



4. The proof of this is seen clinically\* in the progression and transformation of the slighter grades into the higher, the evolution of one stage to another not being exceptional, but almost always the rule in any given case.

5. Microscopically, it was found that from the lightest to the highest grade the pathological phenomena were represented by degrees of inflammation of the skin, superficially situated in the former, but extending more or less throughout the entire cutis in the latter. As a result of the inflammatory process there was a hyperformation of horny epidermis.

6. The sebaceous glands were found unchanged, the diminution in the amount of their secretion being due to mechanical interference to its egress, not to disturbed function.

7. The source of the squamæ seen in the various stages is the hyperplastic epidermis, not the sebaceous glands.

8. In consequence of the processes being inflammatory in nature and situated in the cutis and not in the glands, in consequence of the squamæ being epidermic and not glandular in origin, therefore the inclusion of these processes among glandular diseases of the skin and the designation of *seborrhæa* attached to them are manifestly erroneous.

7 WEST THIRTY-FIRST STREET.

## INGUINAL HERNIA IN THE MALE.†

By HENRY O. MARCY, A. M., M. D., LL. D.,

BOSTON.

UNTIL recently the cure of inguinal hernia in the male has been considered at the best accidental, and even when apparently effected generally doubtful, and it is still taught that the hernia is apt to return. The great majority of surgeons look upon an attempt at cure as ill-advised, and believe that operative measures are not to be undertaken except in cases of strangulation. There is abundant reason for such conclusions when judged from the earlier history of surgical attempts at cure. It is impossible in the limit assigned me to treat at all in an exhaustive way this most interesting subject. Three centuries ago the problem was mastered by the surgeons of Europe, but only by the sacrifice of the testicle and the removal of the cord. In this way the abdominal opening was closed and the resulting cicatrix was unyielding. The demand for relief from this burdensome complaint was, however, so great, even at this sacrifice, braving the suffering from surgery without anaesthetics, and a slow healing of a dangerous, suppurating wound, that the operation was forbidden by royal edict, lest the nation should suffer from the lessening of the reproductive power of the race.

‡ It is necessary to revert briefly to the anatomical structures involved, in order to note the method by which Nature permits the passage of the cord through the abdominal wall without pressure, and retains without inconvenience or

suffering the abdominal organs. This passage is normally lined with peritonæum loosely attached to the abdominal wall without, and to the cord within, the canal. This peritonæum, owing largely to its loose attachment, presents a slight infundibuliform depression at the site of the internal ring, but never more than to permit a very limited movement of the cord within the canal. The canal itself traverses the abdominal wall obliquely from without inward in a direction so that the intra-abdominal pressure, radiating from a center represented by the promontory of the sacrum, is distributed equally along the line of the canal, compressing its walls laterally. The disposition of the canal is not unlike that of the ureter in its entrance into the bladder, the intravesicular pressure closing yet the more firmly the ureter at its orifice.

The pathological changes incident to acquired hernia present, as the first factors, an increase of the infundibulum of the peritonæum about the cord and a depression of the lower border of the internal ring. Thus is produced a change, at first slight, of the direction of the intestinal wave impulse, which acts at times as a wedge to open yet more the ring. Little by little the axis of the canal changes until at length the intra-abdominal pressure is in the line of the opening instead of at right angles to it. These changes, which culminate in a well-pronounced hernia more or less direct, have long been recognized, but it of necessity remained that a reconstruction of the canal to its normal conditions could not be rendered possible until aseptic surgery established the methods of primary repair of the tissues upon a scientific basis. The most important factor, as I shall presently demonstrate, is the closure of the deep structures by means of the buried animal suture.

The essential considerations for the cure of hernia are:

1. *Strict Aseptic Conditions.*—These pertain alike to all modern surgical procedures and need not be recapitulated to this audience.

2. *A free dissection*, in order to lay bare the internal ring, permit of the enucleation of the peritoneal sac, and the separation and elevation of the cord out of the wound. The external epigastric artery often courses in the line of the incision. It is not seldom that the size of this vessel is such that the operator fears he may have wounded the larger vessel.

3. *The Sac.*—The separation of the sac to its very base before removal is to be recommended as the rule. There are times when it is not easy to free the peritoneal pouch, owing to adhesions to the surrounding tissues and, in large, old, irreducible hernia, more or less intimate fusion of the contents to the inner wall of the sac. It is generally better to open the sac before ligating or sewing through its neck, since by so doing the condition at the internal ring is assured, and the operator is often profited by such knowledge even when the sac is completely empty.

Not seldom the omentum is adherent at the internal ring, and even a constricted bit of intestine may escape observation when it is attempted to resect the sac unopened. Freed quite within the ring, tension is to be made upon the sac and then the sutures are applied in the line of the long diameter of the internal ring, and the sac is resected near

\* *Eczema seborrhœicum.* *New York Medical Journal*, 1891.

† Read before the Southern Surgical and Gynecological Society at its annual meeting, in Louisville, November, 1892.

its base. The retraction should be sufficient to carry the resected peritoneum quite within the ring.

Mr. Macewen and his followers, who recognize the, of necessity, from within outward funnel-shaped opening of the inguinal ring after operation, make the attempt to utilize the freed sac, in whole or in part, by puckering it up into a mass and with it embossing the internal ring, more or less filling the open space otherwise left to invite a lodgment of the abdominal contents and wedge open the canal, causing a return of the hernia.

Having demonstrated the feasibility of restoring the obliquity of the inguinal canal, it needs no argument to show the greater value of such a procedure over the substitution of plugging the opening with pathological tissues.

4. *The Posterior Border of the Inguinal Canal.*—Having freed the cord to its point of entrance within the abdominal cavity and lifted it to one side, we are prepared to study the structures which may be utilized in the reformation of the internal ring and the posterior border of the canal. Sir Astley Cooper was the first to emphasize the remarkable development of the transversalis fascia which here is usually found to consist normally of a thick layer of connective-tissue fibers. A careful study of the structures posterior to the inguinal canal, especially if made upon the healthy, well-formed subject, demonstrates that the muscular fibers of the transversalis make up a part of the posterior wall. In fact, it should be considered that the internal inguinal ring is formed by a slit in the muscle. The pyramidalis also greatly strengthens these structures, and it is noteworthy that they rarely if ever yield unless acted upon by a wedge-like force from above downward in the line of the inguinal canal.

In large hernia the lower border of the internal ring has often fallen quite on a line with that of the external ring—direct hernia—but it will usually be found, even where abnormal pressure of the truss has produced absorption, that Nature made a distinct effort to fortify the parts, and that the lower margin of the ring and the transversalis fascia have become markedly thickened. These structures are to be utilized in the reformation of the posterior wall of the canal. Upon the lower and outer border this fascia blends with the posterior edge of Poupart's ligament, while upon the upper and inner border it unites with the lower edge of the transversalis muscle and conjoined tendon. Often the finger may be introduced into the internal ring to aid in the guidance of the needle, which is made to traverse from side to side the relaxed fascia and evenly intrafold it with a layer of continuous tendon sutures. These are continued from below upward, until the internal ring is closed upon the cord at its exit from the abdominal cavity.

One unaccustomed to the operation will be surprised to note the amount of tissue which may be intrafolded to form the posterior border of the canal. If, however, for any reason the structures seem insufficient, it is easy to unite the deeper edge of Poupart's ligament to the lower border of the transversalis muscle and thus strengthen the parts. This is usually recommended by Bassini, and in this in large measure his method of operation consists.

Halsted, of Baltimore, has gone one step farther and ut-

teresses the posterior wall of the canal by uniting all the muscles beneath the cord, forming an entirely new canal external to them. These operators carry the methods which I have long used and taught to extremes that I have rarely found necessary; very likely, in large measure, because by my method of deep double suturing, I am enabled to coaptate a thick layer of firm resisting structures and reform the posterior portion of the inguinal canal quite more closely according to the method of normal construction.

Once satisfied that the coaptated structures are sufficient, the cord is replaced and the uniting of the external structures is conducted in the same manner with a deep double layer of tendon sutures, joining the divided muscular wall of the abdomen and bringing into close apposition Poupart's ligament to the conjoined tendon quite upon the cord, until the external ring is reconstructed. It is surprising to note the little interference which follows upon the close approximation of the structures upon the cord the entire length of the canal, as evinced by lack of pain, swelling of the testicle, or even oedema of the scrotum.

The structures external to the muscles are best approximated by one or more layers of single continuous sutures, taken by means of a Hagedorn needle introduced from side to side. In a similar manner the skin is closed with a continuous buried tendon suture. The needle, straight or curved, is best held in the fingers and is carried through the deep layer of the skin, entering and emerging at points exactly opposite in the sides of the wound. This is important or the wound will assume a wavy look, owing to a puckering of the skin by drawing upon the suture. This I have termed the *parallel suture*, since the needle is carried through the skin exactly parallel to the line of the incision.\* It will be noted, however, when the points of entrance and emergence are exactly opposite, that the suture lies in the wound transversely, and if, for the purpose of demonstration, the wound is allowed to remain only partially closed, the suture lies in parallel lines, like the rounds of a ladder, at right angles to the long axis of the wound.

I believe it is generally safer to conduct the entire operation under the irrigation of a weak sublimate solution, and often sponges are unnecessary. It is much better to remove shreddy tissue if much tearing of the tissues has occurred, since it is very important to join well-vitalized structures in order that primary union may supervene. I think it also, wise to dust the parts with iodoform before sealing with collodion. It is well worth while to take time and pains to dry the wound and evenly coaptate the edges of the skin, sealing, if need be, only a part of the wound at a time. This is best effected by evenly spreading a few fibers of absorbent cotton upon a smooth surface and moistening it with iodoform collodion. This, gently laid upon the approximated edges of the wound, soon dries and makes a germ-proof dressing, holding, as in a splint, the tissues in a firm, sure grasp. This method of wound treatment is of sufficient importance to be emphasized: *aseptic sutures, aseptically applied in an aseptic wound, aseptically maintained.* This is the *sine qua non*, without which more or

\* See *The Anatomy and Surgical Treatment of Hernia*, pp. 401-412. Henry O. Marcy, 1892.

less of failure must ensue. *Otherwise*, buried sutures are not to be commended in any wound, and must ever be a source of danger.

The advantages of the above method of operation and closure of the structures as described are obvious. First, by no other means than the deep closure of the parts by the use of sutures, to be left in the wound and not to be subsequently removed—buried sutures—can the posterior border of the inguinal canal be restored, the parts strengthened and re-enforced, or even the neck of the sac closed and the redundant tissue removed. To accomplish such a purpose the use of silver wire or silkworm gut is not to be considered, since, by general consent, these structures must act as irritants, and usually are a source of much annoyance and suffering until they are ultimately eliminated as foreign bodies. Silk is used by many operators for this purpose; but abundant clinical and experimental studies have demonstrated that silk at the best is encapsuled, never absorbed. It may, after months of suffering, be thrown off by suppurative processes.

A wound that is closed aseptically in layers with the tendon suture leaves no pockets to become distended by blood or serum, and hence the drainage-tube is not required. In aseptic wounds the drainage-tube is ever to be considered as a foreign body, positively harmful, since it separates tissues which should be in contact, and, if long maintained, this portion of a wound must be restored by secondary processes instead of primary union. During its retention it is ever a possible source of danger from infection, which must be guarded against by the most careful of antiseptic dressings. This, in the region of the groin, is most difficult, and the large proportion of suppurating wounds following hernia in the hands of our best operators shows the great risk from an open wound in this portion of the body. The complete closure of the skin by a line of buried animal sutures has been my daily practice for years, and was decided upon in order to prevent stitch abscesses long before the beautiful demonstration showing their cause to be from the introduction of the *Micrococcus pyogenes albus* with the suture—the normal habitat of the healthy skin aiding in the destruction and proliferation of the dying and dead epithelium.

The iodoform collodion seal is useful in two ways: First, it holds in fixation the divided edges of the skin which should be carefully approximated. Secondly, it prevents the possibility of subsequent infection. An aseptic wound thus protected must remain aseptic, and when the tissues are well vitalized the union must be primary.

If the skin is in close approximation the union is linear, and often after a few months can scarcely be detected. In many wounds in other parts of the body this is of great value, especially so in facial wounds in the female. It is interesting to note briefly the repair processes which supervene in such a wound. Histological investigations upon animals show that the tendon or animal suture is little by little invaded by leucocytes which are abundantly proliferated to surround the material. Little by little, dependent upon age, activity of developmental processes, vitality of structures, etc., this proliferated material is trans-

formed into connective-tissue cells until the suture is in large measure replaced by a band of living tissue. This is important in most wounds, but is perhaps never of greater value than in hernia, where the resistant power of the structures has long been defective. An aseptic wound thus closed is rarely painful, edematous, or even tender to gentle touch. The new proliferated material can be easily felt for a considerable period, and is perhaps at its maximum four to six weeks after the operation.

For many reasons the tendon suture is greatly to be preferred to catgut—a subject of extreme interest and importance, but one that can receive here only slight reference. The kangaroo tendon has met with universal approval by nearly every operator who has used it, and is now in the market in quantity and in price so that it comes within the reach of every surgeon. I am confident that once used by an operator, he will not do without it in his surgical practice.

Time does not permit an analytical comparison of the different methods of operation. I have recently treated this subject *in extenso*.<sup>\*</sup> The operation is eminently a safe one. In a table which I have collated of over three thousand cases, the proportion of deaths is less than one per cent., and these are for the most part explained as resulting from causes which the authors state were accidental and were not due to the operation.

In numbers, Bassinni's clinic leads the list—262 operations and only one death, and that from pneumonia; Championnière's clinic, 254 operations, 2 deaths; Schede's clinic, 165 operations, 2 deaths; Banks, 106 operations, no deaths; Park, 115 operations, no deaths, 85 reported cured; Marcy, 115 operations, no deaths, 78 traced, 4 relapses. Even the experience of the late celebrated John Wood, of London, covering years of labor before the period of antiseptic régime, gave only seven deaths in 339 operations.

By estimate, between three and four millions of the people living in the United States are subject to this usually lifelong progressive disability, and if the demonstration is complete that the risk of life is less than one per cent. from operative procedures instituted for cure, and that scarcely more than ten per cent. are subject to relapses, and these almost invariably remain in a state improved by the operation, the plea is a strong one to consider favorably the advisability of operation in a very large majority of all the sufferers from hernia. We are all painfully familiar with the dangers of strangulation in neglected hernia and the large percentage of mortality which results therefrom. It seems to me a duty resting heavily, not only upon all surgeons, but also every physician residing where he can not easily obtain surgical assistance, to familiarize himself with all the details of the operation for hernia, its relief when strangulated, its cure when troublesome, and thus fit himself for the discharge of a solemn obligation which may at any moment of his professional experience be freighted with the issues of life or death.

150 COMMONWEALTH AVENUE.

<sup>\*</sup> *The Anatomy and Surgical Treatment of Hernia*. By Henry O. Marcy, A. M., M. D., LL. D., Boston. Quarto, with 66 full-sized illustrations, some colored. New York: D. Appleton & Co.



## THE ADAPTATION OF THE EDISON CURRENT TO THE GALVANO-CAUTERY.

By EDWARD J. BERMINGHAM, A. M., M. D.,  
SURGEON TO THE NEW YORK THROAT AND NOSE INFIRMARY.

SINCE September, 1890, I have been using the Edison current for nearly all galvano-cautery operations. The method in which this is accomplished I have repeatedly had the pleasure of demonstrating to visiting professional friends. As the apparatus is simple and can be easily constructed by any ordinary machinist, I propose to give a brief description of it.

*The Rheostat.*—The rheostat is made of No. 14 iron wire wound in the form of a spring, forming a coil about an inch and a quarter in diameter. The length of this coil must, of course, vary according to the maximum quantity of current which it is designed to carry. In the instrument I use the coil is about fifty feet in length. This is arranged in parallel rows in lengths of about two feet, care being taken to insulate wherever there is the slightest danger of short-circuiting. I have arranged the whole in a box underneath a table. A switch-board controls the amount of resistance. The entire coil should be in circuit at first; then, by moving the arm of the switch successively from post to post of the switch-board, the amount of resistance can be gradually lessened until the proper-sized current passes to the knife.

*The Conductors.*—It is essential that the conductors should be large enough to carry all the current needed for the largest knives. In the instrument which I have now in use I employ No. 8 copper wire to connect the rheostat with the underground cables in the subways, and No. 14 flexible cords, doubled, for each conducting cord connecting the cautery handle with the rheostat. All safety fuses should be stout enough to resist the current employed.

*The Cautery Handle.*—A great objection to the use of the Edison current in cautery work is the production of an arc in the cautery handle in completing and breaking the circuit. I have devised a handle in which this is obviated. It is a closed-circuit handle. The conductors are not broken, but form one solid piece and a closed circuit with the knife. A spring, controlled by the operator's thumb, holds a piece of metal firmly across and in contact with both handle conductors so as to form a connecting link between them. Pressure with the thumb pushes the metal from both conductors and allows the current to pass to the knife. Release of the pressure permits the spring to bring the metal bar again in contact with both conductors, and the current, seeking the shortest distance home, leaves the knife and takes the road across the bar. There is no arc, and the handle works to perfection.

The conductors in the handle should also be large enough to carry the requisite sized current, and thus obviate the resistance and accompanying heat. No. 8 wire is used in my handle. The rheostat which I am now using, and which I made two years and a half ago, is adapted for heating knives requiring from fifteen to sixty amperes of current. It has always given me complete satisfaction.

7 WEST FORTY-FIFTH STREET.

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NEW YORK, SATURDAY, FEBRUARY 4, 1893.

### THE MANAGEMENT OF PLACENTA PRÆVIA.

AMONG the subjects of great interest discussed by the Brussels Congress of Gynecology and Obstetrics, in September last, was the treatment of placenta prævia. Dr. D. Berry Hart's report on that subject excited general interest and much comment. In his paper he began by giving a caution regarding forcible efforts at delivery before the cervix was well dilated. All attempts to introduce the hand through it for the purpose of detaching the placenta or of extracting the infant, he said, were made at the risk of a laceration or bruising of the uterus. The avoidance of violent extraction efforts, even when the introduction of the hand into the womb was not required, was essential to the well-being of the infant. The operation offered little chance of life to the child and was not free from danger to the mother; hence a very important indication was to act without precipitation and violence. The complete detachment of the placenta is not always indispensable to the arrest of blood-loss. The first period of the operation of cervical dilatation, with Barnes's dilators, should be made as short as possible; at that time it is that the dangers of hemorrhage during the procedure must be kept in view. If labor is imminent, rupture of the membranes may suffice to excite uterine contraction and put a stop to the hemorrhage. A temporary employment of the tampon may be indicated, the tamponading to be done thoroughly with iodoform gauze.

Separation of that portion of the adherent placenta that covers the inferior segment of the womb may at times be accomplished by the introduction of the index finger, when the introduction of the hand or total detachment of the placenta is impracticable or dangerous. This step favors regular dilatation of the internal orifice as well as contraction of the lower uterine segment, and this, in turn, favors the lessening of blood-loss.

After dilatation has been effected, if the head is the presenting part, the use of the forceps is to be preferred to version, as safer to both child and mother. The operation of version is not, as a rule, favorably viewed by Dr. Hart. When version is resorted to "in a head presentation," he says, "we go completely against the course indicated by Nature." He is aware that it is maintained that by this procedure we facilitate dilatation of the cervix by exercising traction on the legs and body of the child, and that the head makes salutary pressure on the surface that is the seat of the hemorrhage. To this he replies that both these ends are better subserved by the hydrostatic dilator and then by the forceps. "Version demands more force, which does harm to the patient and diminishes the

chances of life to the child." His recent experience, especially since his abandonment of the Braxton Hicks bimanual method, leads him to the opinion that placenta prævia is destined to become progressively less fatal to infants; in his later practice he has been enabled to record thirty-three per cent. of children saved.

The value of the use of Barnes's dilators as a relatively safe and rapid means of obtaining dilatation and tamponage has been increasingly made apparent to Dr. Hart, both in his earlier and in his later experience. These implements, he thinks, must be regarded as indispensable to the rational and scientific management of placenta prævia.

#### SMALL-POX IN CENTRAL AFRICA.

A FRENCH pioneer missionary to the Barotse, named Coillard, has given in the *Christian* for December 29th an account of his efforts to contend with epidemic small-pox in a tribe of very wild Africans. Dating from the return of a war party that brought back with them a multitude of captives, women and children chiefly and designated concisely as "slaves," the whole valley in which the missionary dwelt became the seat of small-pox. No adequate sanitary precautions can be adopted in the case of a wild people like these. The warriors and their slaves, some of them infected, scattered themselves throughout the villages. Nearly every person sooner or later took the disease, even some who had formerly had it. The deaths became so frequent that the people left off wailing for their dead and many of the latter were not buried, but were thrown into the river or dragged off into the fields. The missionary proceeded to inoculate some cows, and, collecting the lymph, "vaccinated" the people with it. After many attempts he succeeded in getting a protective lymph. He even instructed some intelligent young tribesmen to inoculate the kine and to collect lymph and apply it. The negro doctors tried to imitate his methods and established a keen competition for the purpose of enriching themselves, but some of them contracted the small-pox and died of it. The people flocked to the missionary by hundreds, but they could never be induced to return to the mission to part with the lymph from their own vaccinations, so that the missionary had to go again and again through the tedious ordeal of implanting the virus upon cows or calves. A curious feature about the transaction was the behavior of the king of the valley. He selfishly sought to limit the treatment to himself, his family, and his attendants, then to his own village, and then to the ruling persons of adjoining villages; but at last he reluctantly consented to its extension to the nation at large. The motive for this conduct seemed to be an ambition to show a kind of monopoly in the matter of plague repression. The missionary was not to be daunted, but continued his lymph production sufficiently to give supplies of his product to his brother-missionaries among the nations or tribes that were liable to come into contact with his own infected people.

## MINOR PARAGRAPHS.

### TUBERCULIN IN LUPUS OF THE FACE.

DR. J. WILLIAM WHITE and Dr. Alfred Wood, of the University of Pennsylvania, have given in the *American Journal of the Medical Sciences* for January an account of lupus cured by tuberculin. The article is illustrated by two photographs showing the left side of the patient's head before and after treatment. The disease occurred in a man, aged fifty-nine years, and had been under observation for two years and a half. The ulcerated surface, situated in front of and below the ear, measured four inches and over in its long diameter and about sixteen square inches in area. The lupus began as a small scab in front of the ear, from which point it extended steadily and ulcerated as it grew. The diagnosis made by the practitioners who first saw the case was that of epithelioma, and eight cutting operations and numerous applications had been unsuccessfully tried before the use of paratuberculin was tried by Dr. White. Six injections in the lumbar region were made in three weeks, beginning with 0.1 milligramme and rising to 0.5 milligramme at each injection. A distinct reaction was obtained, and no local treatment was employed. At the end of three weeks the healing was sufficiently established to allow the patient to return home, and ten days later the ulcer was entirely closed. Now, two years later, the site of the former ulcer is occupied by a firm and sound scar, and the patient states that at no time has there been the slightest solution of continuity since the time of the healing. This long period of sound condition after the use of paratuberculin is unusual, and few permanent cures of lupus have been reported from the use of that substance. Cheyne has some cases of rapid healing, and the patients have continued in good condition for several weeks. But the case we have spoken of strongly emphasizes the utility of the remedy in some desperate cases, and indicates that more frequent trial should be made of it when failure has followed a number of operative procedures.

### PNEUMOCOCCUS MENINGITIS.

DR. LHERITIER DE CEGELLE and Dr. G. PRIEUR publish in the *Archives de médecine et de pharmacie militaires* for December 1892, an account of a case of pneumonia, occurring in a soldier aged twenty-two years, that pursued a normal course, but in which the convalescence was slow and the patient remained debilitated. Almost four months after the cessation of the pneumonic symptoms he was seized with violent delirium and died in a few hours. A necropsy showed a yellow exudate within the dura mater, and bouillon and gelatin cultures of inoculations of this exudate proved that it was caused by Fraenkel's pneumococcus. Netter was the first (*Archives générales de médecine*, 1887) to demonstrate that pneumococcus meningitis could occur primarily without the localization of the diplococcus in any other organ, as was shown by a pneumococcus meningitis without pneumonia. Such cases are observed when there is a prevalence of that grave form of pneumonia that is usually accompanied by endocarditis, pericarditis, or some other extra-pulmonary complication, a pneumonia that differs from the ordinary form and to which Germain Sée has given the name of infecting pneumonia (*pneumonie infectante*).

### DISEASES OF THE ACCESSORY NASAL SINUSES.

DR. ROBERT C. MYLES read a paper on this subject before the Section in Laryngology of the New York Academy of Medicine on Wednesday, January 25th. The advantage of mouth

illumination by a three- or four-candle-power electric light in a dark room for diagnostic purposes was illustrated on several patients, though it was not maintained to be an absolutely reliable test. Polypoid degeneration of the mucous membrane, in the author's experience, was the most frequent cause of empyema of the maxillary antrum, but upon this point Dr. Harrison Allen, of Philadelphia, and Dr. J. H. Bryan, of Washington, disagreed with him and with each other, the former having found it in his experience due to trouble in the teeth, and the latter to operations upon the teeth. Absence of pain, it was said, was generally to be expected in this disease, and the main diagnostic points were the oozing of pus from the orifice of the antrum, a slight fullness upon the affected side, a dark spot beneath the eye seen with the electric-light test, and an odor perceptible by the patient as well as by others. The practitioner should be on the lookout for diseases of the accessory sinuses, for it is undoubtedly true that many cases go unrecognized except as cases of ordinary rhinitis, and that this may be true even among nose and throat specialists is suggested by the relatively large number seen by Dr. Myles during the past year.

#### THE ACADEMY OF MEDICINE AND NATIONAL QUARANTINE.

At a special meeting of the New York Academy of Medicine held on Tuesday evening the academy's special quarantine committee made a report in which it spoke of the quarantine establishment at this port as utterly inadequate, and attributed its success in excluding cholera last summer to a "fortunate combination of external assistance and good luck." The report was adopted, and a committee was appointed to go to Washington for the purposes of opposing the national quarantine bill now before the Senate and of securing the passage of a better one. The committee first mentioned disclaimed the intention of casting blame upon individuals. Its report was decidedly pessimistic, but it is to be hoped at least (for we have no great faith in the mission to Washington) that it will have the good effect of strengthening the hands of the health officer of the port in his renewed attempts to obtain State legislation to enable him to improve and enlarge his resources. On this probably we shall have to depend next summer, for the prospect of satisfactory congressional legislation this winter does not seem bright. Fortunately, there is good reason to believe that the State of New York will provide adequately for the occasion, and that Health Officer Jenkins will use his more ample facilities judiciously.

#### THE INFLUENCE OF THE MINERAL CONSTITUENTS OF THE BODY UPON IMMUNITY FROM INFECTIOUS DISEASE.

DR. T. LAUDER BRUNTON and Mr. T. J. Bokenham have been engaged for some months past in testing the effect of feeding animals with salts of potassium, calcium, strontium, magnesium, and aluminium, with the view of ascertaining whether animals could be so saturated with these salts that the artificial alteration in the mineral constituents of the body would alter its resistance to the attacks of an infectious disease. Their results were reported in the *British Medical Journal* for July 18, 1891, and January 7, 1893. While in no case were any ill effects produced by the drugs themselves, there was no evidence that their administration exercised any protective power.

#### PUBLIC INDIFFERENCE TO SANITATION.

At the fortieth annual meeting of the American Society of Civil Engineers, held recently in New York, the committee on

impurities of public water supplies asked to be discharged on the ground that, after continued effort, it was clear that the committee could not accomplish any good in the absence of co-operation by persons in every part of the country, which co-operation could not be obtained. The State boards of health of Massachusetts and Connecticut had taken up the subject, and the committee judged that such individual work was the only kind practicable in view of its experience. The American Water Works Association had also attempted to do similar work, but had met with no success. Those engaged in sanitary work know how true this statement is regarding public apathy in such matters, but the committee should not, we think, have been so easily discouraged, but rather have continued its work until it was appreciated.

#### A PROPOSED TREATMENT OF ASIATIC CHOLERA WITH SULPHUR DIOXIDE.

DR. G. C. PURVIS suggests in the *British Medical Journal* for January 7th that, as the cholera spirillum does not form spores, the employment of a solution of sulphur dioxide by rectal injection, as in Cantani's method of tannin enteroclysis, would speedily destroy that organism in those portions of the intestinal tract reached by the gas. He bases his recommendation on

Professor Cash's experiments that showed a  $\frac{n}{20}$  or  $\frac{n}{30}$  (where  $n = 64$  grains to the litre) solution of sulphur dioxide to be almost instantaneously fatal to anthrax bacilli. The sulphur dioxide may be prepared by acting on crystalline sodium sulphite, in water that has been boiled, by either hydrochloric or sulphuric acid.

#### POST-GRADUATE COURSES AT THE HOAGLAND LABORATORY, BROOKLYN.

DR. STERNBERG, director of the laboratory, has planned a course of twenty-five demonstrations, beginning in February and extending into May, for the benefit of graduates. The first part of the course will be devoted to work in histology and pathology, under Dr. J. M. Van Cott, and the latter half will be guided by Dr. Sternberg himself into bacteriological examinations. These studies are undertaken with the view of enabling practitioners to make independent research as to bacteria in tissues and for the improvement of their microscopical work. The fee for the course will be thirty dollars.

#### A VINE LEAF THE NUCLEUS OF A VESICAL CALCULUS.

At a recent meeting of the *Société des sciences médicales de Lyon*, as we learn from *Lyon médical*, the *débris* of a calculus that had been removed from a woman, aged twenty-eight, were presented. The nucleus of the calculus was a vine leaf that she had introduced into her urethra eight years before the operation.

#### A NEW JOURNAL OF MEDICAL ELECTRICITY.

THE new *Archives d'électricité médicale, expérimentales et cliniques*, founded and edited by M. J. Bergonié, the professor of medical physics of the Bordeaux faculty of medicine, bids fair to form a valuable addition to our periodical literature. An excellent feature is its bibliographical index.

#### ITEMS, ETC.

**The American Electro-therapeutic Association.**—At the annual meeting officers for the ensuing year were elected as follows: Presi-



dent, Dr. Augustin H. Goelet, of New York; vice-presidents, Dr. William F. Hutchinson, of Providence, R. I., and Dr. W. J. Hardman, of Ann Arbor, Mich.; secretary, Dr. Margaret A. Cleaves, of New York; treasurer, Dr. R. J. Nunn, of Savannah, Ga. The next meeting will be held in Chicago on September 12th, 13th, and 14th.

**Dr. Hammond on Organic Extracts.**—In Dr. William A. Hammond's article On Certain Organic Extracts: their Preparation and Physiological and Therapeutical Effects, published in our last issue, an error occurred in the last paragraph. In the sixth line from the conclusion, for "uric acid," read boric acid.

**The Buffalo Academy of Medicine.**—At the next meeting of the Section in Surgery, on Tuesday evening, the 7th inst., Dr. George F. Cott will read a paper entitled Some Remarks on Intubation, and officers for the ensuing year will be elected.

**The New York Therapeutic Review** is the title of a new quarterly journal edited by Dr. Paul Gibier. The first number for January, 1893, contains thirty large octavo pages of reading matter.

**The Metropolitan Medical Society** has elected officers as follows: President, Dr. Henry S. Stark; vice-president, Dr. S. Marx; recording secretary, Dr. B. F. Ochs; corresponding secretary, Dr. E. Meierhof.

**The Universal Medical Journal** is now the title of the *Satellite of the Annual of the Universal Medical Sciences*, edited by Dr. Charles E. Sajous and Dr. C. Sumner Witherstine, of Philadelphia.

**Changes of Address.**—Dr. Henry O. Marcy, to No. 180 Commonwealth Avenue, Boston; Dr. C. J. Mooney, to No. 38 East Sixtieth Street.

**The Death of Dr. Linus P. Brockett, of Brooklyn,** occurred on January 13th. He was a native of Canton, Conn., and a graduate of the Yale Medical School. He had lived over thirty years in Brooklyn, and had given his time largely to literary work. He was the author of *Woman's Work in the Civil War* and several other books. His age was seventy-two years.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 15 to January 28, 1893:*

**RAYMOND, THOMAS U.**, First Lieutenant and Assistant Surgeon, is relieved from further duty at Vancouver Barracks, Washington, and will report in person to the commanding officer, Fort Canby, Washington, for duty at that station, relieving CARTER, EDWARD C., Captain and Assistant Surgeon, who, on being thus relieved, will proceed to Vancouver Barracks and report in person to the commanding officer of that post for duty there.

**POINDEXTER, JEFFERSON D.**, Captain and Assistant Surgeon, is granted leave of absence for four months.

**EDIE, GUY L.**, Captain and Assistant Surgeon, is relieved from duty at Fort Niobrara, Nebraska, and will repair to New York city and report in person to the attending surgeon in that city for duty in his office.

**CRAMPTON, LOUIS W.**, Captain and Assistant Surgeon, now on leave of absence at Los Angeles, California, will report in person to the commanding general, Department of Arizona, for such temporary duty at Los Angeles, California, as may be required.

**WALKER, FREEMAN V.**, Captain and Assistant Surgeon, is granted leave of absence for four months on surgeon's certificate of disability, on condition that he spend the period of leave as a patient in the Army and Navy General Hospital, Hot Springs, Arkansas.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 28, 1893:*

**ARNOLD, W. F.**, Passed Assistant Surgeon. Detached from the U. S. Training-ship Richmond and granted three weeks' leave of absence.

#### Society Meetings for the Coming Week:

**MONDAY, February 6th:** New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morisania Medical Society (private); Brooklyn Anatomical and Surgical

Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh Pa., Medical Society; Chicago Medical Society.

**TUESDAY, February 7th:** Medical Society of the State of New York (first day—Albany); New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Hampden, Mass., District Medical Society (Springfield); Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (annual—Lewiston); Baltimore Academy of Medicine.

**WEDNESDAY, February 8th:** Medical Society of the State of New York (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medical Society of the County of Albany; Pittsfield, Mass., Medical Association (private); Franklin, Mass., District Medical Society (quarterly—Greenfield); Philadelphia County Medical Society.

**THURSDAY, February 9th:** Medical Society of the State of New York (third day); New York Laryngological Society; New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society (annual); Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

**FRIDAY, February 10th:** New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

**SATURDAY, February 11th:** Obstetrical Society of Boston (private).

#### Answers to Correspondents:

No. 392.—Probably circumcision would be of service.

No. 393.—We know of no such reports.

## Proceedings of Societies.

### NEW YORK SURGICAL SOCIETY.

*Meeting of November 9, 1892.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

#### Thiersch's Skin-grafting on a Large Burned Surface.

Dr. F. W. MURRAY presented a patient who had been operated upon by this method. Six months before, the patient had been scalded over the abdomen and over the greater part of both upper extremities. The scalds of the abdomen and of the right upper extremity had healed quickly under the use of dermatol. On the left side there was left a large granulating surface, beginning above the wrist, involving the entire flexor surface of the forearm and elbow, then involving the entire inner half of the arm, extending across the axilla and ending in the left pectoral region. The entire granulating surface was completely covered with skin grafts at one sitting. All the grafts united, excepting over a small space in part of the elbow; but this healed rapidly. Wet dressings for seven days, then dry dressings, and the patient was soon discharged entirely healed and with a useful arm. There was a slight contraction at the elbow, but it did not increase and did not interfere with the use of the arm. At different parts of this grafted surface could now be seen what appeared to be secondary formations of scar tissue. About the edges of the grafts the underlying tissue was thickened and elevated and the appearance was that of false cheloid. This

was the first case which the speaker had seen where such a condition had followed Thiersch's method of skin-grafting.

Dr. F. LANGE had noticed a like secondary formation of scar tissue in several of his cases after the patient had been discharged with a perfectly healthy grafted surface. He mentioned one case where he had done the operation for webbed fingers with good result. The patient had been presented to the society. Six months later he had seen him again. Apparently scar tissue had formed underneath the grafts and contraction to a certain degree had been the result. The same thing he had noticed in a lady from whose cheek he had removed a melanosarcoma. Primarily the grafts had healed in a faultless manner.

Dr. F. KAMMEERER had had a similar experience last summer in a case where he had done Thiersch's grafting after the section of some contracted tissues on the neck after a burn. The denuded surface had been quite a large one and had been immediately covered by the grafts. The result a few weeks after operation was apparently a very good one, and the contraction seemed to have been entirely overcome. Several months later, however, the process of contraction had again gone on beneath the grafts to a considerable extent.

Dr. CHARLES MCBURNEY desired to know how long the rubber tissue had been left on.

Dr. MURRAY replied, Seven days.

Dr. MCBURNEY thought that where the rubber tissue and wet dressing had been replaced by a dry dressing so early as had been specified by Dr. Murray this cheloid condition would be more apt to develop. He thought the wet dressing should be left on at least twelve or fourteen days. However, the discontinuance of the wet dressing at an early period would not account for all cases of cheloid formation, for the speaker had seen it occur in several instances where the wet dressings had not been removed until after the lapse of a fortnight.

Dr. L. S. PILCHER had noticed the cheloid formation, but had been more interested in another complication. In a case where he had done grafting over an extensive burn everything had gone well as long as the patient had remained in bed; the grafts had all appeared perfectly healthy. In a few hours after the patient had left his bed a very extensive purpuric condition had developed, not only in the new grafts, but also in the surface from which the grafts had been taken. This purpura had gone on to the formation of blisters discharging a serous fluid. Some of the blisters had opened and some had not. Upon the patient's returning to bed the purpura had diminished and the surfaces had resumed a more healthy appearance. After his leaving his bed the second time the same condition had developed, and he had returned to bed a third time, after which the healthy appearance had again been resumed. The patient was now in bed.

Dr. GEORGE R. FOWLER expressed the opinion that the cheloid formation was due to the same cause that produced the condition after other operations than skin grafting. Some time before he had attempted to remove a large vaccination scar which had undergone cheloid change from the arm of a child by cutting away the scar and grafting the surface with the skin of a frog. Secondary cheloid had developed. The speaker had again attempted the operation by grafting the skin from the lower surface of a pigeon's wing on to the child's arm. Again cheloid had developed. The third time the operation had been done the skin had been taken from the inner surface of the patient's thigh, after which cheloid had developed, not only in the graft, but also at the point from which the graft had been taken. He had not attempted a fourth operation.

Dr. WYETH suggested that the contraction at the elbow might be overcome by cutting the contracted tissues and sewing

on a flap of skin turned over from the abdomen. He had successfully treated two cases in this way.

**Extensive Ulceration of the Scalp.**—Dr. KAMMEERER presented a patient showing this condition. The girl was about nineteen or twenty years old, with neither family nor personal history beyond the fact that, about eight years before, she had noticed an ulceration on the outer side of the left foot, which had gradually increased in size for about two years, and had then begun to heal and had gone on to perfect recovery without treatment. Four years ago a small ulcer had appeared on the top of the patient's head, which had gradually increased in size until the present time, when it occupied almost the entire scalp. She had entered St. Francis's Hospital last summer in about the same condition that she was now in, except that the granulations had not then been so healthy-looking as they now were. The entire scalp and forehead were involved and covered with smooth, flabby, granulating tissue. For the first two months very large doses of iodide of potassium had been given three times daily. This had done no good. Then the patient had been etherized, the borders of the ulcer excised, and the ulcer itself scraped and dressed with a 1-to-250 solution of silver nitrate. She had done very well under this treatment for two months, but lately the appearance of the granulations had not been so healthy. During curetting the skull had been denuded of its periosteum in several areas of the size of a twenty-five-cent piece. These places had, however, again been covered by the granulations.

The speaker had been unable to come to a definite conclusion regarding the nature of the trouble. He had, of course, suspected syphilis and tuberculosis, the former as the more probable. The appearance of the ulcerated surface and the result of combined surgical and medical treatment did not, however, warrant such a diagnosis. A microscopical examination of the granulating tissue had not been made.

Dr. LANGE had seen a few similar cases of this smooth granulating surface. In one case almost the whole chest had been involved. In this case hypodermics of mercuric bichloride had done good work. Since some cases of syphilis did not yield to the iodide alone, he advised "mixed treatment" in this case. He did not think the ulcer tuberculous; therefore it must be syphilitic, as there was nothing else for it to be. The character of the scar on the foot made it probable that there had existed a syphilitic ulceration.

Dr. C. K. BRIDGON had seen one similar case. Large doses of iodide of potassium had increased the disease. It had readily yielded to "mixed treatment." He had thought both cases syphilitic.

Dr. MCBURNEY said he would not give a positive opinion, but he believed the ulcer to be tuberculous, from its appearance and also from the character of the scar at the ankle. He also thought its growth was too slow for syphilis. He advised Dr. Kammerer to examine the ulcer for tubercular bacilli.

Dr. WILLY MEYER thought the ulcer was due to syphilis, since the evidently former extensive sore surface on the foot had healed without operative treatment. According to his experience, tuberculous ulcers of such a size never healed without surgical interference.

Dr. MCBURNEY differed with Dr. Meyer in this respect. He had seen several tuberculous ulcers heal without operation.

Dr. WYETH asked if it was possible that the ulcer could have been caused by irritants applied by friends while the patient had been sleeping. He had seen one such case.

**Large Vesical Calculi.**—The PRESIDENT showed specimens that had been taken from the body of a peddler, sixty-two years old, who had presented himself at Mt. Sinai Hospital in a state of physical and mental decrepitude. The only history

that could be secured was that, fifteen years before, he had suffered from retention of urine and had been compelled to use a catheter. This had lasted only a short time, and he had soon become "perfectly well." Four months ago the bladder had become irritated and continued so when he had come into the hospital, on July 12th. Upon the introduction of a sound it had immediately come in contact with a calculus. The bladder seemed almost filled with calculi. Only about two ounces of fluid could be forced into the bladder. A suprapubic operation was done and the three calculi were removed. They weighed 4,140 grains. The first one had been the only troublesome one to remove. Unfortunately, the patient died of exhaustion nine days after the operation.

**Neurectomy.**—DR. LANGE showed two specimens of nerves he had taken from two old men (one sixty years old and the other seventy) by Thiersch's method and forceps. The first specimen had been from the third division of the fifth nerve. It had been taken from just below the foramen ovale. About an inch of the main trunk had been removed. The second specimen had been a part of the second branch, taken from just below the foramen rotundum. In both cases the neuralgia had been cured. In the second case the evulsion was done partly at the point of the exit from the infra-orbital canal, and the nerve was extracted far into its finest ramifications up to about the point of entrance into the fissura orbitalis inferior. A second evulsion just below the foramen rotundum in the same sitting, after osteoplastic resection of the zygoma, had yielded the main trunk, including, as he thought, the ganglion sphenopalatinum. In the first case only one branch of the third nerve had given way in its smallest ramifications.

## Book Notices.

*Études de clinique chirurgicale.* Année scolaire 1890-1891.

Par A. LE DENTU, professeur de clinique chirurgicale à la Faculté de médecine de Paris. Avec trente-six figures dans le texte. Paris: G. Masson, 1892. Pp. xi-312.

THE AUTHOR states that this volume is, he trusts, the initiative of a series of clinical studies that will be published from time to time as circumstances permit. In it he has presented the statistics of his operations for a year, the clinical lectures that he has delivered, and descriptions of the more important operations that he has performed. The text is illustrated, and the book is an interesting and worthy record of a year's work in the Hôpital Necker.

### BOOKS, ETC., RECEIVED.

**The Anatomy and Surgical Treatment of Hernia.** By Henry O. Marcy, A. M., M. D., LL. D., of Boston, President of the American Medical Association; Surgeon to the Hospital for Women, Cambridge, etc. With Sixty-six Full-page Heliotype and Lithographic Plates, including Eight Colored Plates from Boungery, and Thirty-seven Illustrations in the Text. New York: D. Appleton & Company, 1892. Pp. xvi-421. [Price, \$15.]

**The Diseases of Children, Medical and Surgical.** By Henry Ashby, M. D. Lond., F. R. C. P., Physician to the Central Hospital for Sick Children, Manchester, and G. A. Wright, B. A., M. B. Oxon., F. R. C. S. Eng., Assistant Surgeon to the Manchester Royal Infirmary. Second Edition. Edited for American Students by William Perry Northrup, A. M., M. D., Attending Physician to the Presbyterian Hospital, New York. New

York and London: Longmans, Green, & Co., 1893. Pp. xxii-773. [Price, \$5.]

**A Handbook of the Diseases of the Eye and their Treatment.** By Henry B. Swanzy, A. M., M. B., F. R. C. S. I., Surgeon to the National Eye and Ear Infirmary, Dublin. Fourth Edition. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xv-518. [Price, \$3.]

**Handbook of Massage.** By Emil Kleen, M. D., Ph. D., Practicing Physician in Carlsbad, Bohemia. Authorized Translation from the Swedish. By Edward Mussey Hartwell, M. D., Ph. D., Director of Physical Training in the Public Schools of Boston. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xvi-17 to 316. [Price, \$2.75.]

**Alcoholism and its Treatment.** By J. E. Usher, M. D., Fellow of the Royal Geographical Society of London, etc. New York: G. P. Putnam's Sons. London: Baillière, Tindall, & Cox, 1892. Pp. xii-151. [Price, \$1.25.]

**The Coal-tar Colors, with Especial Reference to their Injurious Qualities and the Restriction of their Use.** A Sanitary and Medico-legal Investigation. By Theodore Weyl. With a Preface by Professor Sell. Translated, with permission of the Author, by Henry Leffmann, M. D., Ph. D., Philadelphia. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xii-17 to 154. [Price, \$1.50.]

**Convulsions and Malaria.** By Frederick Hill Stanbro, M. D., Springville, N. Y. [Reprinted from the *Medical News*.]

## New Inventions, etc.

### A NEW INSTRUMENT FOR IRRIGATING THE UTERUS IN PUERPERAL SEPTICÆMIA.

By RUSSELL BELLAMY, M. D.,  
JUNIOR PHYSICIAN, RELIEVE HOSPITAL.

RECENTLY, while pursuing one of the most popular methods of treating puerperal septicæmia, using several of the favorite irrigators, I was impressed with the great length of time required in douching the uterus, the liability of injuring the softened walls of this organ, the imperfect drainage, the small area of the diseased endometrium that is attacked by the therapeutic agent, and the uncertainty of the amount of organized and necrosed tissue that is removed by the bichloride or creolin solutions.

Believing that the obstacles related above attending the methods by the use of the instruments for intra-uterine douching could be easily overcome, I devised an irrigator, which, after having been thoroughly tested, is described as follows:



1. It consists of two tubes—a glass tube, twelve inches long, half an inch in diameter, with its proximal end slightly curved and smooth, its distal end containing two openings, one being horizontal, tapering for the introduction of the internal tube; the other, opening at the end of an arm an inch and a half long, at an angle of forty-five degrees, for the outflow (if a Kelly pad or a bed pan is not used) through rubber tubing to a receptacle below.



2. The internal tube is composed of material which renders it firm, but sufficiently elastic for all purposes. It is fourteen inches long, one fourth of an inch in diameter, having twenty perforations at its proximal end; to the distal end is attached the tubing of an ordinary fountain syringe.

*Method of Using.*—The glass tube is introduced well into the cervix uteri, the index finger on the os tinea being the guide.

The second tube is introduced through the glass tube until the distal end of the glass tube is closed by the rubber tubing, which embraces the distal end of the internal tube for half an inch.

*Advantages.*—1. A double return flow is got, the one coming back between the tubes being especially advantageous in cases of contraction of the os uteri, the space between the tubes being sufficient to admit quite a large-sized slough, clot, or detritus; the other returning on the outside of the tube.

2. It saves time, a large douche bag being emptied in three minutes, while by other tubes fifteen to twenty minutes were consumed, thereby causing the woman little discomfort, preventing a long strained position, and saving the busy obstetrician much valuable time.

3. By having a large number of openings, small in size, we are enabled to secure more power to attack a larger portion of endometrium (the force of the liquid being regulated by the height of the bag), and the certainty of removing all noxious material being secured.

4. The moderately soft and pliable consistence of the internal tube, which comes in contact with the uterine walls, does away with the possibility of injuring them seriously, as might be the case with the other devices of glass and metal.

5. In cases of post-partum hæmorrhage, or where it is considered advisable to rapidly irrigate the uterus or vagina, either tube can be attached to the fountain syringe and used with great advantage.

6. It can be kept aseptic, boiling water and antiseptic solutions not seriously affecting it.

I am greatly indebted to the W. F. Ford Surgical Instrument Company, New York city, for their promptness and cleverness in carrying out my design.

## Miscellany.

*The New Mesmerism.*—Under this heading the London *Times* for January 10th publishes the following letter from Mr. Ernest Hart, the editor of the *British Medical Journal*:

"Having been invited by the committee of the Institut de France to attend the Pasteur Jubilee, I found myself in Paris at the moment when the first communication of your correspondent on The New Mesmerism was published. In view of the importance attaching to statements published so prominently and with so much detail in the columns of the *Times*, I took the opportunity of communicating through a medical friend with Dr. Luys, and was invited by him to witness the demonstrations which your correspondent so picturesquely describes, and which carried such firm conviction to his mind. The whole phenomena which he witnessed were actually reproduced before me, and many more, still more startling and dramatic, of which he makes no mention. Being deeply interested in performances which were, *prima facie*, so astounding, and which, if verified, would carry us back to some of the old practices and conclusions of the mystics and sorcerers of the middle ages, I thought it worth while to spend a fortnight in the closest investigation of the facts, and in attempting to arrive at correct conclusions as to their causation.

"With this object I made repeated visits to La Charité hospital, and I visited the École Polytechnique by the invitation of Colonel Rochas d'Aigun, the administrateur of the school, who reproduced before me there, as he had already done in the presence of Dr. Luys at La Charité, the performances described as 'externalization of the sensations' and 'transference of sensibility to inanimate objects.' I was able to carry out at La Charité hospital itself some very simple test experiments, which, at the outset, convinced me that Dr. Luys was the victim, to some extent, of trickery and imposture, and that he did not take even the elementary precautions necessary to protect himself from fraud on the part of his subjects, and from self-deception. I suggested to him at once one or two simple tests of the good faith of his patients, such as the use of an electro-magnet, in which the magnetic current could easily be extinguished without the patient's knowledge; and again, in his experiments on the influence or alleged influence of medicinal substances in sealed tubes placed in contact with the skin, I suggested that substances other than those which the patient had reason to believe were in use should actually be applied. Both of these precautions, however, he declined then to take, alleging either that he had done so in the past or would in the future. He could only show me, he said, his experiments in his own way, and, if I were not convinced, he could only regret it. On each of the occasions of my visits I was accompanied by independent and competent witnesses, who observed with me that in two instances in which I employed very simple magnetic tests of control, the patients were utterly at fault, giving false answers, and seeing blue flames and red flames issue from a small pocket simili-magnet, which was no magnet at all, and making other blunders which equally gave reason to suspect imposture.

"Subsequently to this I secured the attendance at my apartments of five of the persons on whom Dr. Luys had been accustomed, and is still accustomed, to give his demonstrations in the wards, and who have been the chief subjects of his *Leçons cliniques*, of which I have before me the printed volumes, containing reports of the marvelous phenomena produced, with photographic representations of many of them. I had in all nearly twelve sittings with these five subjects, among them being the persons shown to your correspondent and going through the performances which he describes. At all these sittings there were present medical and scientific witnesses and independent observers of undoubted competency. Among those who were present at one or other of the sittings were Dr. Louis Olivier, *docteur des sciences*, directeur de la *Revue générale des sciences*; Dr. Lataud, editor of the *Journal de médecine de Paris*; Dr. Sajous, editor of the *American Annual of Medicine*; M. Crémière, of St. Petersburg; Mr. B. F. C. Costello, of London, and others whose names I need not at present mention. They have signed the notes of the various test experiments. These notes are too numerous and too detailed to permit me to venture to burden your columns with them; I shall shortly publish them in detail. I need only say here that the whole of the phenomena were reproduced with sham magnets, with substituted figures, with misnamed medicinal substances, and with distilled water, and with sham 'suggestion,' opposite suggestion, or none at all. Every one was able to convince himself that all the results so shown were, without exception, simulated, fictitious, and fraudulent. That some of the patients were hypnotic and hysterical in a high degree does not alter the fact that from beginning to end they all showed themselves to be tricksters of the most barefaced kind; some of them very clever actors, possessing dramatic powers which might have been turned to better purposes, most of them utterly venal, and some of them confessing that they played upon the credulity of Dr. Luys for their own purposes.

"I do not, of course, ask your readers to accept this statement as final evidence, but the protocols of the sittings signed by the witnesses present at each of them and the detail of the methods employed will, I think, convince even the most credulous apostles of the new mesmerism that we have here to deal only with another chapter of human folly, misled by fraud, a reproduction of the old frauds of Mesmer, of the self-deceptions of Reichenbach, and the malpractices of sham magicians of the middle ages who have still their ingenious imitators. These impostures and this self-deception mask themselves now under a new nomenclature, and avail themselves of recent developments of psychological investigation in order to assume more plausible shapes and a

*pseudo-scientific* character. But when the authentic details of their separate and combined simulations are read, it will only remain to regret that so much prominence has been given to so sad a page in human wickedness and folly, and that men of distinguished position and good faith have allowed themselves, by carelessness and persistent credulity, to be made use of as propagators and apostles of wild follies and vulgar deceptions. There is a still more painful social and moral side to this matter to which I can here only distantly allude, but which confirms me in the belief that the question is at least as much one of police as of science, and from that point of view deserves the attention of the lay authorities of the Paris hospitals and of the correctional tribunals."

**Intrathoracic Auscultation.**—The last number of the *Asclepiad* contains a paper on this subject, read before the Medical Society of London on October 31, 1892, by Dr. B. W. Richardson, in which he says:

"I call the present essay a study of Intrathoracic Auscultation, a New Departure in Physical Diagnosis, and I can not introduce it to your notice better than by relating how it came into my mind and practice. A few months ago a patient consulted me who was suffering from serious and obscure symptoms referable, by the process of exclusion in diagnosis, to the upper portion of the alimentary canal. He had lost flesh to an extreme degree, was very feeble, had often a difficulty in swallowing food, at times retained food of a fluid or semi-fluid kind in the stomach for long periods, and then, after suffering severe pain, vomited it with difficulty, returning it in a partially digested state. I looked upon the symptoms with suspicion as possibly indicating malignant disease of the lower part of the œsophagus; but as I found he had been following an imprudent dietary, I was content at the moment to regulate diet carefully and to prescribe a mixture of dilute hydrochloric acid and pepsin. He left me, to return in two months, reporting himself in every respect better. He had gained in flesh, he retained food, was free from acute pain, had improved in strength, and had lost a sense of weariness of mind as well as body, which had been most oppressive. He had determined to take a holiday, and I agreed with him that the change he suggested would be advantageous. I did not see this patient again for three months, when he consulted me once more in consequence of a sudden return of his worst symptoms, to which were added others pointing more decisively to œsophageal mischief low down in the tube. With difficulty he had partaken of a rather too copious meal one day previously, and soon afterward had been seized with acute pain, which lasted until the undigested mass had been vomited, with free secretion of the gum-like mucus characteristic of stricture. He was again greatly emaciated, presented a condition of circulation so feeble that I could scarcely detect the radial pulse, and the heart was so weak that it was difficult to distinguish clearly the two sounds.

"I tried in this case what I have called the water-gurgle test for the diagnosis of stricture, as described in the *Asclepiad*, vol. vii, p. 332; that is to say, I got the patient to attempt to swallow fluid while I auscultated in the line of the œsophagus anteriorly and posteriorly. Whenever there is true stricture of the organic class I have usually found by this method a point where there is heard a loud gurgling sound on attempts to swallow, followed by a sharp noise as of a passing current of fluid through a constricted passage, and I think there are few more characteristic points of diagnosis of stricture existing in the lower third of the tube. There was no response to this test in the present instance, and the patient expressed to me that the tumbler of milk and water which he had swallowed went down without his being conscious this time of obstruction. I turned, therefore, naturally to the use of the œsophageal tube—an operation which led me to the new facts I have to record. I passed along the œsophagus a medium-sized tube and ran it without difficulty down to the stomach. There was no serious obstruction at any part, but I thought I experienced some sense of friction of a very slight kind. While endeavoring to be certain on this matter an idea which I had once before had in my mind, but had not before acted upon, suddenly occurred to me. Why not auscultate through the exploring tube? At once I sliced off a portion of the free end of the tube obliquely, slipped over this sliced end the terminal part of the double stethoscope, and made in this fashion the exploring tube

a continuous stethoscope. The effect of auscultating in this way was most interesting and satisfactory. I could hear soft friction of the tube against the walls of the œsophagus, and was made quite sure that the friction was uniform throughout and that there was no special constriction or induration in any portion of the tube. When I passed the tube into the cavity of the stomach itself I obtained a sound new to me, like a gentle seething as of air or gas agitated in a thickish fluid, and at times a gurgling sound of gas, with another sound probably due to muscular contraction of the stomach itself. As the patient experienced no trouble or inconvenience during examination, I had ample time for inquiry; and I leisurely withdrew the tube, noting the sounds audible in the course of the movement. In the tube at this time there were only two openings, and those at the extreme end. I succeeded therefore in catching sounds at such points only as were in apposition to the openings. I withdrew the tube until the opening on the left side came in contact with that portion of the œsophagus that lies in immediate proximity with the heart. By previous auscultation of the heart over the thoracic wall I had failed to detect clearly the two cardiac sounds owing to the feebleness of the cardiac action, but now both sounds were as distinct as they would have been from a normal heart. They were not, however, the same precisely as the sounds we hear through the thoracic wall; they were duller in character, as if they wanted the resonance which is probably produced by the pleura stretched over the thoracic cavity. At the same time they were loud and were singularly distinct. By moving the tube gently up and down I could get the second sound separately from the first, and *vice versa*; but when I had the opening of the tube midway so as to compass both sounds, there was not so much difference between the first and second sounds as is distinguishable under ordinary auscultation. I was quite prepared for all these modifications of phenomena; they corresponded precisely with what I had learned many years ago when, in combination with the late Dr. Baly and Dr. Sibson, I had seen Dr. Halford demonstrate Brien's valvular theory of the cause of the two sounds. We listened at that time directly to the sounds from an opening in the chest wall of a lower animal under anesthesia, and I detected that with such immediate auscultation the sounds were deficient in sharp resonance, and were more equable in tone than was common from ordinary auscultation. It was the same now. I counted the beats of the heart very deliberately from the inside of the thorax, seventy beats per minute, the sounds and the pause in proper order and the action perfectly regular. I expected that on withdrawing the tube further out of the œsophagus it would be possible to hear a loud sibilant or vesicular murmur in respiration. In this I was disappointed to a certain extent. It was impossible to catch a murmur, even on a deep inspiration, so distinct as the murmur heard from the chest wall outside.

"From these observations I have been led to the new departure in physical diagnosis in which I am anxious others should take part, and I have devoted some time to certain preliminary steps in its development. Briefly it is a means for auscultating on an extensive scale the organs of the body *from within the body*. I shall occupy most usefully the short remaining time at my command by indicating, first, the lines of research in which the plan promises to be most useful; secondly, the limitations of the plan and, if I may so express myself, the objections to it; and thirdly, the modes by which it may be improved from this its original start, so as to make it ready, safe, and in its broadest sense useful.

"Touching the first of these points, the method promises to be useful—I hope very useful—in the diagnosis for which I first applied it. It proved of service to me; at the moment it told me distinctly, in the case I have referred to, that there was no constriction, no induration, at any part of the œsophagus, so that the hearing confirmed the touch, or, rather, corrected it in a manner that could not have been more satisfactory. The advantage will be that stricture may be detected in its very earliest stage—the stage in which, according to my experience (unfortunately, an experience specially large in this disease), there is the only chance of doing good by dilatation. The new auscultation may prove also an aid to diagnosis in diseased conditions of the stomach itself. It is certain, from the sound I heard from within the cavity of the stomach, that there are going on there changes of a physico-chemical kind, leading to a sort of effervescence that is distinctive in character. It is most



probable there are differences of sounds connected with special fermentations, and that by study and experience these differences may become detectable at once by auscultation. Here there is an open field for research into which I have been unable as yet to enter. Again, as bearing on the stomach, the motions of that organ evidently produce sound that will admit of interpretation. A healthy stomach may possibly give forth no sound, or it may give forth a definite sound when full of food, with other sounds during various stages of digestion. These are points to be inquired into and will be of curious interest. Still it is certain that in diseased conditions of the stomach a whole series of diagnostic symptoms will be learned, bearing not only on the fermentative action in progress, but on alterations in the walls, and on contractile functions. The stomach, in short, will admit of being sounded like the chest. Scirrhus affecting the stomach should easily be diagnosed by auscultation. Through the stomach it may also be possible to diagnose disease physically and more correctly than we now diagnose the nature of some pulsating abdominal tumors which are, as they have been since the time of William Harvey himself, a constant source of disagreement among physicians. With the terminal of a full-sized oesophageal stethoscope in the stomachic cavity a loud murmur from an arterial source will be detected without the interposition of pressure, and an important difficulty in diagnosis removed. A third service that may be rendered by intrathoracic auscultation is forecast in the observation I have already made respecting the detection of the cardiac sounds in conditions when those sounds are inaudible under the usual method owing to extreme feebleness of the circulation. We are called sometimes to persons in such entire collapse that it is doubtful whether they are alive or dead. The sounds of the heart are imperceptible to the ear through the thoracic walls. Here, then, is an instant and ready method of deciding whether the action of the heart is still in progress. We have a new proof either of absolute death or of continued life. In acute collapse, as after death from chloroform, we not only can institute a good diagnosis in the same manner, but we are half way, by our manipulation, toward assisting to restore life. Through the oesophageal tube, after disconnecting the stethoscopic tubes, we could inject a free quantity of heated water or water with oxygen peroxide into the stomach; or, if we had learned the practice correctly, we could direct an electrical current upon the heart itself, so as to excite contraction of the right side.

"The use of the intrathoracic method may be turned to account in diagnosis of heart disease and of aneurysm of the large thoracic arterial trunks. Stricture of the oesophagus arising from aneurysmal pressure would be instantly diagnosed. These cases are often most perplexing. The pressure causing the obstruction varies, and no sufficient sign of aneurysmal murmur in the early stages reaches the ear at all times. One auscultator fortunately catches the murmur, another does not, and so contradiction upon contradiction among the best diagnosticians occurs. By the process of intrathoracic auscultation this difficulty would be immediately met, the pulsation would come under direct observation, and the precise seat of the pressure would be descended upon. We should hear a pulsating stricture. In heart disease itself the intrathoracic mode of examination should be of service. By it we ought to be able, in cases of enlargement, to distinguish between dilatation and hypertrophy. The diagnosis of clot on the right side might be made clear by this plan, and the differential diagnosis of valvular affection on the right or left cavity ought to be rendered absolute, when we have learned sufficient of oesophageal auscultation to discover the new distinctions of sound that will have to be made, in some cases at least, between the tone of the first and the second sounds, and have defined all new lines of distinction between these sounds as heard from within and from without the exterior walls of the chest. The clearest definition by this test should be obtainable also as between pericardial and endocardial friction sound and between pericardial as distinct from pleural friction.

"As this is only a preliminary note, I must leave untouched the subject of pulmonary auscultation by the intrathoracic method and also that of pharyngeal exploration. The pharynx is within such easy reach, it should admit of more frequent auscultation than lower parts of the oesophageal canal. Its size, too, renders it more accessible. From it we should be able to reach the apices of the lung and the greater part of the air passages from the larynx down to the bifurca-

tion of the bronchi. Exploration of these parts will be easy when a set of appropriate and convenient exploring instruments has been constructed, and will afford help to diagnosis of changes incident to the apices of the lungs in subclavian, innominate, and carotid murmurs, and in thickenings and obstructions of the trachea and larynx.

"Having given an outline of what may be gained by intrathoracic auscultation, I shall now refer to the limitations of the plan and to the objections which may be taken to it. I assume at once that this mode of research is not called for when by the ordinary auscultation diagnosis is clear. It may come in usefully in all cases where the oesophageal tube is used for exploration, but it will not be always applicable in instances where it might be useful, owing to the circumstance that many patients are unable to bear the introduction of the tube, and that it may sometimes be inadvisable to subject them to it. I met with a patient last week suffering from probable thoracic aneurysm, in whose case the exploration would have been most valuable; but the introduction of the tube caused so much retching and straining, I was obliged to withdraw the tube before I had explored as fully as I could have wished, although what was effected was sufficient to inform me of the existence of aneurysmal murmur from the left carotid or subclavian. The explorations might also be objectionable in cases of irritable stomach, or where there was severe cough or cough with hæmorrhage. I need not dwell any longer on particular points of this kind, since the whole is summed up in a sentence: whenever the practitioner feels he can safely and prudently pass a tube into the stomach, he can practice intrathoracic auscultation.

"The third point, the modes in which this method may be improved by mechanical means, opens up a very wide field of inquiry. I commenced my work with the ordinary flexible tube, and up to the present time I have found nothing better than a good-sized tube with a large lateral aperture at the extreme end. I have used another tube charged with several apertures an inch from each other, and this answers fairly well. Apertures are essential in these tubes; if they are not made there is little or no conduction of sound. Messrs. Krohn & Sesemann have been making tubes for me of different materials, and one of metal of malleable nature is good in many ways; but I have not yet obtained what is precisely wanted. The best tube at this moment is the long oesophageal flexible tube with the stethoscope attached to it.

"I leave now this contribution in the hands of a society to which it has been my high privilege to communicate many of my first thoughts from the very opening of my long career. I would not on any account attach an undue importance to the effort, or look upon it as anything more than an extension of the simple act of the illustrious Laennec, when, in the Necker Hospital, one day in 1816, he improvised a stethoscope out of a roll of paper and projected thereon a new science to which there seems to be no end."

#### Urethrectomy, Partial or Complete, as a Method for the Radical Treatment of Rupture of the Urethra, Fistula, or Organic Stricture.

—Dr. Thomas H. Manley recently read a paper with this title before the Section in Genito-urinary Surgery of the New York Academy of Medicine, the concluding portion of which (here printed from advance sheets of the *Annals of Surgery*) was as follows:

It is almost needless to say that, for many obvious reasons, these operations were undertaken with some hesitancy and trepidation, as I have always believed that serious surgical operations should have something more to commend or justify their performance than their uniqueness or novelty, however skillfully performed. But having carefully studied the anatomico-physiological qualities of the normal urethra and considered just what constitutes the pathological foundation of all traumatic or organic strictures or fistulae, I could conceive of no serious objection to total resection of the entire caliber of the urethra with an immediate homologous urethrorrhaphy in old fistulae or traumatic rupture; nor to external urethrotomy, partial linear resection of the calloused mass, and immediate reconstruction of the urethral floor with the cellular tissues. It might be said that the membranous urethra, in its long as well as in its lateral diameters, is lax, elastic, and very distensible.

Dr. Otis was the first to demonstrate its enormous lateral distensile properties, thereby opening the way to successful lithotomy.

I am not acquainted with any author who has called attention to



this property of elongation possessed by that segment of the urethra wholly enveloped by the perineal muscles. It also may be added that the principles of this operation are precisely the same as those employed in the management of all organic strictures.

Through a certain course of pathological changes generally consequent on gonorrhoea, the male urethral mucous membrane undergoes degenerative changes, resulting in a destruction of its epithelium layers and a fibrosis of its underlying tissues. That this is clearly understood is evident by the measures commonly instituted for the relief of a condition which art is powerless to perfectly cure. We may widen a narrowed, strictured passage by immediate or gradual dilatation, split it with a blade from within or without, burn an opening through it by potash or electrolysis, yet, with all, complete retrogressive changes to the normal state can not be said to ever occur, though the immediate inconvenience which it occasions usually disappears.

It might be argued that a urethral floor composed of cellular elements will never assimilate to mucous membrane, and a contracted condition must follow this operation, worse than that we have endeavored to relieve.

John Hunter, Baron Dupuytren, Laennec, and Villumé long ago called attention to the close resemblance of the membrane investing a urinary fistula and a mucous one. Cruveilhier and Chassier admit the possibility of the reproduction of mucous membranes after they have suffered loss of substance. Andral claimed that in all these cases the reproduced mucous membrane was the result of transformation of the cellular elements.

Diefenbach in his time demonstrated by the Taliscotian method, which has been recently revived, that he succeeded in curing a large number of perineal fistule of urethra, though in those days nothing was known of anesthetics or antiseptics. Thus it appears that the fundamental objections can not stand against this autoplactic procedure in the surgery of the urethra.

Happily, since the two cases here recorded were dismissed from the hospital, I have read with much satisfaction Guyon's essay, which appeared in the *Gazette hebdomadaire*, May 14, 1892, entitled Resection Partial of the Perineal Urethra, followed by Restoration Entire and Complete.

It may not be amiss here to give the substance of his article, as it has a direct bearing on the subject under consideration, and is in many particulars a peculiarly unique production.

In the beginning he says that partial resection of the urethra has occupied a very moderate rank until very recently; that Roqués, one of his internes, has been able to collect but sixty-four cases from all sources. Forty-nine of these were complete and fifteen incomplete. After describing the precise manual for operation, he tells us that Championnière treated a case of complete traumatic rupture of the urethra by perineal section and immediate approximation with entire success. There were nine cases of lesions of the perineal urethra treated in his own wards; six by himself. In all these cases operation was resorted to only when the passage of instruments was quite impossible. Four were traumatic and two blennorrhagic. In two there were fistule. In all, the entire calloused mass was removed and prompt union followed. Patients' ages were from fourteen to fifty years. The youngest leaving the service could pass a No. 30 sound (French), and the adults from No. 50 to 60.

In no instance had there been any troublesome relapses, though he admits that he advised them to pass a sound on themselves from time to time.

RÉSUMÉ.—(a) It seems, then, from the foregoing, that in all cases of traumatic rupture of the perineal urethra the tissues should be laid open at as early a date as possible, and the continuity of the lumen of the urethra should be then entirely restored by a urethrorrhaphy.

(b) In those urethral, perineal fistule which resist dilatation or other tentative measures, regardless as to whether they are of a traumatic or blennorrhagic origin, they should be resected and continuity restored in the passage by homologous approximation of the separated edges, the hiatus remaining being obliterated through linear elongation of the fibers of the muscular coat.

(c) With those strictures rebellious to tentative methods, not appropriate for internal urethrotomy or division, when they are divided

by an external incision the occasion should be utilized to hew a gutter through the cicatricial tissues, and to reconstruct the floor of the canal with the adjacent connective tissues.

(d) In all cases the most rigorous asepsis should be employed, and the aim in every case should be to secure non-suppurative, primary union.

**The New York Academy of Medicine.**—For the meeting of Thursday evening, the 2d inst., a memorial address on the late Dr. James R. Leaming, by Dr. J. Leonard Corning, was announced; also a paper on A New Method of Artificial Respiration in Asphyxia Neonatorum, by Dr. J. Harvey Dew.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 9th inst., Dr. F. W. Lester will open a discussion on Pineapple Juice as an Application to Diphtheritic Pseudo-membrane; a member whose name is not announced will read a paper on Differential Diagnosis in Cases of Dyspnoea; and Dr. T. H. Manley will read one on Surgical Measures of Relief in Stenosis of the Air-passages.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 14th inst., Dr. W. K. Otis will read a paper on The Treatment of Suppurating Buboecy by Injection of Iodoform.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we assume to do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Lectures and Addresses.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE PRESIDENT'S INAUGURAL ADDRESS,  
DELIVERED AT THE EIGHTY-SEVENTH ANNUAL MEETING,

February 7, 1893.

By LEWIS S. PILCHER, M. D.

BROOKLYN.

MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK: The duty which your by-laws impose upon the president of inaugurating the annual meeting by communicating to the society the condition of the medical profession in the State at the current date is a pleasing task at this time by reason of the encouraging report which the facts warrant. It is especially fitting that such a review should be required of your presiding officer on account of the very important relations to the medical profession of the State which this society sustains. The people of this commonwealth, by the act of their representatives in the Legislature of 1806, constituted this society the legal representative of the medical profession of the State, provided for the organization of the practitioners of the State into county medical societies, and by a later enactment made it the duty of every physician to join the medical society of his county. To these societies were committed important functions pertaining to the licensing of medical practitioners and to the regulation of the practice of physic and surgery while they were affiliated with and subordinated to the State Medical Society. With the lapse of years the development of new conditions of society, of education, and of practice brought from time to time modifications in the duties presumably required of these medical corporations; the function of supervising the qualifications of those who should desire to practice physic and surgery in the State of New York was virtually abrogated by the law of 1844, which threw open the privileges of medical practice to all men who could protect themselves from suits for damages due to malpractice, from ignorance or immoral conduct in their practice. The Legislature of 1857 gave legal status to practitioners of homoeopathic medicine by incorporating them into State and county societies, and likewise, in 1865, the eclectic practitioners were given a similar legal status. In 1874, 1880, and 1887 statutes were enacted by the several Legislatures of those years, regulating and defining the status of the medical practitioners in the State by which the prerogatives of the State and county medical societies were less prominently acknowledged and the importance of chartered medical colleges was more clearly recognized. Nevertheless, throughout the whole of this long period of eighty-seven years, the State of New York has never ceased to recognize the dignity and importance of the medical society which it created in 1806 as the proper representative and exponent of rational medicine within its borders. This society has ever been unceasing in its efforts for the public welfare, for raising the standard of medical education, and for promoting a higher ideal of medical character. By vir-

tue of its representative character, of the loftiness of its aims, and the personal dignity and worth of its members, its influence for good in this commonwealth has never been measured or restricted by the legal regulations or stipulations that may have bound it at any period of its history. It has furthermore continually used its influence to elevate the status of medical education and practice throughout the country at large; during the early years of its history it was active in securing common action among the medical colleges of the United States in improving the character and extent of the teaching in those institutions; later it inaugurated and carried to a successful issue the movement for organizing an American medical association, and in the more recent past it did not hesitate to declare that the changing conditions of knowledge, of education, of legislative enactments, and of social conditions made it desirable that the medical profession should emancipate itself from certain paternal restrictions that it had inherited from the conditions of a previous generation, and to formally take action giving a large liberty of personal judgment upon ethical questions to all who acknowledged its authority. It thus placed itself again in the forefront of a reform the effects of which have spread far beyond the limits of the State within which this society has any jurisdiction.

In the immediate present the commonwealth has again intrusted to this society the important duty of supervising the qualifications of all who may hereafter desire to practice rational physic or surgery within the State of New York, by the recent law constituting a medical board of examiners, whose members shall be nominated by this society and to whom, thus representing this society and being accountable to it for their work, is committed the prerogative of fixing the standard of educational qualifications to which every future practitioner of rational medicine in this State shall attain before receiving license to practice.

Your president has taken some pains during the past year to acquaint himself with the condition of the medical profession throughout the State. The estimated number of practitioners is 10,000; the estimated population is 6,000,000, or 1 physician to every 600 of population; of these 10,000, about 8,000 are practitioners of rational medicine, 1,300 of homoeopathic medicine, 400 of vegetable medicine, and the remaining 300 represent many kinds of medical theories.

The number of schools devoted to undergraduate instruction in rational medicine is 9; of these, 2 are in the city of Buffalo, 1 in the city of Syracuse, 1 in Albany, 1 in Brooklyn, and 4 in New York city; 2,096 students are at the present time under instruction in these schools—128 in Buffalo, 58 in Syracuse, 170 in Albany, 201 in Brooklyn, and 1,539 in New York city.

The number of schools in the State of New York devoted to post-graduate instruction is two, both in New York city. During the past year the number of matriculants at these two schools has aggregated 819.

The number of students in the medical schools in this State is especially significant from the fact that the entrance into these schools is guarded by a preliminary examination

prescribed by the State, and conducted not by the officials of the schools but by the Board of Regents of the University of the State, an examination which is not a mere form but is sufficient to insure that intending students of medicine shall already possess a fair general education before beginning their technical studies. It is still more significant by the fact that the diplomas of these schools no longer confer the right to practice medicine in the State of New York, and have a value only as the thoroughness and comprehensiveness of the instruction to which they testify is acknowledged by public opinion. The laws of the State further require that all who hereafter enter upon the practice of physic or surgery in this State shall have attended three full courses of lectures, and all the medical schools of the State now require the same amount of attendance upon lectures before the granting of a diploma, while the general influence of these teaching bodies is to encourage their students to extend periods of lecture attendance to four years. The influence of the present conditions that attend medical education in this State is very healthful, in that every teaching corporation is directly stimulated to improve its methods and facilities for teaching, that thereby students may be attracted to its halls. An examination of the curriculum and the published statements of each of the schools of this State, supplemented in some instances by additional statements from the dean, shows that much has been done already and more is contemplated in the immediate future toward securing proper gradation of studies, division of students into small sections under tutorial supervision, systematic text-books and laboratory drill, and adequate personal contact of the students with patients in dispensary and hospital classes. The present law of the State with regard to the supply of anatomical material is fairly liberal, and an enlightened public opinion has sustained its practical application whenever it has been brought into question. Laboratories of histology and pathology have been furnished and equipped in connection with all the schools, and in New York city and Brooklyn elaborately planned and fully endowed institutions for these departments of instruction exist, in which not only the instruction of students is provided for, but every facility and encouragement for original work is furnished not only to their staff of instructors, but to any member of the medical profession. The department of practical obstetrics presents conditions of special difficulty in American communities for organization so as to give the needed amount of practical demonstrative teaching to students. Appreciating this and thinking that this one department might be taken as a fair index of the average character of the instruction that was being given in the medical schools of the State, I addressed to each of them an inquiry as to the amount of practical experience in midwifery required by each of a student before graduation, stating that I intended to present the information thus obtained to this society. The following are the answers received:

*Medical Department of Niagara University.*—Each student attends from five to ten cases before graduation.

*Medical Department of the University of Buffalo.*—Each student is required to attend at least two cases.

*Medical Department, Syracuse University.*—At least

one case must be attended; usually from two to four are given.

*Albany Medical College.*—Provision is made to enable members of the senior class to attend one or more cases of obstetrics.

*Long Island College Hospital.*—All obstetrical cases in this hospital and in the Kings County Hospital used for clinical instruction. Six students in the former and three in the latter attend each labor. The average number of labors attended by each student has varied from five to fifteen.

*Woman's Medical College of the New York Infirmary.*—Each student is required to attend ten cases.

*Bellevue Hospital Medical College.*—Each student is recommended to have a two-weeks' course at the midwifery dispensary, during which each student attends at least six cases of labor, but this is not obligatory.

*Medical Department, Columbia College.*—Every student required to attend the Sloane Maternity for one week, day and night; examine all cases and be present at all confinements.

*Medical Department, University of the City of New York.*—Students who desire it may secure attendance in the lying-in service of the midwifery dispensary for periods of two weeks or more. Not obligatory.

From these replies it is evident that much progress is being made in this most important department of medical instruction. It appears, however, that in at least two of the largest schools in this State it is still possible for students to receive the degree of Doctor of Medicine without ever having seen a case of labor. I know that it is the desire of the authorities of these schools that at the earliest practicable moment this reproach should be removed, and I submit that it is a proper thing for the Medical Society of the State of New York to use its influence in promoting this end. For this purpose I would recommend that this society formally request the Regents of the University of the State to decree that an essential requirement for admission to examination in obstetrics by the State Board of Medical Examiners shall be that the candidate certify to having attended at least three cases of labor.

Time does not permit me to further analyze the methods of medical education now prevalent in this State. I think, however, that all the facts warrant the statement that positive improvement in every direction is constantly being effected, that it has already attained a breadth and thoroughness and practical value that compels the confidence of an enlightened public, and that wherever deficiencies or occasions for adverse criticism still exist, that will gradually be removed with the lapse of time; they are the faults of youth, the results of the absence of governmental control and endowment, the effects of the spirit of individualism which is at once our pride and our weakness. It will ever remain the duty of this society to point out the way of improvement and to give form to the public and professional opinion which must always precede each advance step.

*The State Board of Medical Examiners.*—The work of this board may now be considered as fully inaugurated. The time during which any persons desiring to practice



medicine in this State were exempt from examination by this board has now elapsed, and at the present time the only gateway to the legal practice of medicine in this State is examination by this board. I am not aware that the two years of testing to which this law has been subjected has shown it to possess any objectionable features, while its influence is acknowledged by all to have been beneficent. Up to the 1st of December last, ninety candidates had been examined by the board representing this society, of whom eighty had been accepted; ten by the board representing the Homœopathic Medical State Society, of whom five were accepted; and five by the board representing the Eclectic State Medical Society, of whom two were accepted. When it is remembered that these were all subjected to the same examination, except in the department of therapeutics, it illustrates the direct effect of the bill on the public welfare, since, while it caused the rejection of eleven per cent. of the candidates from schools of rational medicine, it caused the rejection of fifty per cent. and sixty per cent. of the candidates from schools of sectarian medicine. The inevitable result of the continuance of the work of this board will be to greatly improve the general standard of medical education in this State. It is certain also to excite the antagonism of those whose pretensions are put in so bad a light by its workings. It behooves every intelligent and public-spirited citizen to protest on every proper occasion against any modification of the existing law which shall weaken its force or efficiency in any way. It would be proper for this society at this time to adopt a resolution expressing satisfaction with the law as it now stands, and requesting that the Legislature decline to permit any modification of its provisions for the present at least, and instructing its committee on legislation to be vigilant in guarding this law against amendment or attack. I accordingly recommend such action to the society. The society will be called upon at this meeting to nominate four candidates, from which shall be chosen by the Board of Regents two persons to fill vacancies that will occur in this Board of Examiners during the present year. Such nominations will have to be made hereafter at each meeting of the society. Hitherto a special committee to select these names has been appointed by the president. It is evident that this places in the hand of the president a responsibility which ought not to attach to that office, and practically makes the Board of Examiners to represent the presidents of the society rather than the society as a whole. The suggestion was made in the president's inaugural address of last year that the annual duty of selecting names to fill these regularly recurring vacancies be delegated to the regular nominating committee of this society—a suggestion which seems eminently proper in view of the thoroughly representative character of the committee. I desire to renew the suggestion at this time, and to recommend its adoption as the settled policy of the society.

*Necrology.*—Before proceeding further with suggestion of special matters that may properly be brought to the attention of the society, I desire to pause while a merited tribute is paid to the memory of those of our number who have died during the past year.

Dr. Thompson Burton, permanent member, died at Fultonville, May 5, 1892, aged eighty years.

Dr. Abiathar Pollard, permanent member, died at Port Henry, April, 1892, aged ninety-one years.

Dr. F. L. R. Chapin, permanent member, died at Glen's Falls, April 10, 1892.

Dr. Charles E. De la Vergne, permanent member, died at Brooklyn, June 4, 1892, aged thirty-four years.

Dr. James R. Leaming, permanent member, died at New York, December 5, 1892, aged seventy-two years.

The advanced age to which most of those named had attained will attract attention. These, our fathers in medicine, passed to their rest full of years, attended by the regrets and the love of the communities among which they labored. Dr. De la Vergne was stricken in the full vigor of his manhood by a virulent diphtheria contracted by him while ministering to a patient suffering from a similar disease. His name is to be added to those who have died in the field, and swells the unnumbered host of physicians who are martyrs to duty.

*The Merritt H. Cash Fund.*—Permit me to invite the attention of the society to this fund of \$500 which has been in the treasury of the society since 1862. It is a legacy left without restriction by the late Dr. Merritt H. Cash, of Orange County, a member of this society who died in 1861. By vote of the society it has been invested, and the income from it is, from time to time, offered as a prize to be competed for. It has been awarded eight times. Vaccination, Acupressure, Artery Constriction, School Hygiene, Fractures of the Lower Extremity of the Radius, Phosphorus and the Hypophosphites, The Sanitation of School Life and Schoolhouses, and The Caisson Disease have severally been the subjects which have engaged the attention of the prize essayists. It perhaps may be questioned whether the use of the fund for the purpose of stimulating original work and valuable contributions to knowledge has been altogether successful. But few competitors have striven for the prize at any time, and in some instances no essay that was deemed worthy of securing the prize has been offered. It is undeniable that the temper of modern scientific work is not favorable to such prize competitions. Even if it were, the amount which this society has at intervals offered as a prize (\$100) is entirely too small to serve as an inducement for extensive research or laborious experiment in the preparation of an essay, while the honor attaching to it has not been sufficiently great to compensate for the meagerness of the money element. I would ask the society to consider whether a better use of this money may not be made in the future. The fund, in the first place, should be increased. The interest should be allowed to accrue and be added to the principal until the fund is at least \$1,000, while the society should take measures to add another \$1,000 to it, so that an annual income of at least \$100 should be at the disposition of the society. With this sum an annual lectureship could be maintained; the lecturer could be selected from among the most capable men of the medical profession in the country, who should present to the society the results of his own observation in the fields in which he was confessedly eminent.

Thus the value of the annual meeting would be greatly enhanced, and the attendance of an increased number of the profession would be attracted and rewarded. Such a lecture naturally would occupy one of the evenings of the session.

*Time of holding Annual Meetings of County Societies.*—

By previous presidents attention has been called to the desirability of the adoption of a uniform period of the year at which the annual meetings of all the county societies should be held, in order that the directory of officers and members of each society in the transactions of the State society may be an accurate record for the current year. Of more importance, however, is the fact that often there are communications to be made from the State society to the county societies, requiring action by them at their annual meetings. If such annual meetings occurred at some time during the spring following the meeting of the State society it would make such communications more direct, and would tend to promote a more intimate relation between the State and county organizations. At the present time eleven county societies have their annual meetings in January, one in April, eleven in May, twenty-five in June, six in July, one in September, four in October, and one in November. The reasons above given would make the month of May the latest period to which the holding of the county annual meetings should be deferred. I respectfully suggest that this society adopt a resolution urging its constituent county societies to appoint this month for their annual meetings.

*Attendance of Delegates from the County Societies at the Meetings of the State Society.*—The average attendance of delegates and permanent members of the society at its annual meetings for the years 1890, 1891, and 1892 has been 186. The average attendance for the three years 1880, 1881, and 1882 was 173. The steadiness with which the work of this society has been maintained is worthy of special remark in consequence of the well-known fact that most persistent efforts were made for a number of years to alienate both individual members and whole county societies from their allegiance to this society. It is a subject for congratulation that with the lapse of time the feelings which prompted this action have been largely overcome by the manifest absence of the abuses or tendencies which were feared and prognosticated by some and by the steady improvement in every element of professional character and work as fostered by the society. Year by year county societies which at first, after the change in the code of ethics in this society, declined to send delegates, have renewed their representation until at the present time there are very few which are not in full fellowship with this society, so that practically now the whole profession of this State has become unified under the leadership of the State Medical Society. It is my pleasure to announce that at this present session the County of Queens, which has not been represented for some years, is again represented by its delegates, and that the claims of the State society against it for back dues have been adjusted in accordance with the plan previously ordered by this society.

*The American Medical Association.*—I have the pleasure of presenting to this society at this time a communication

from Dr. William B. Atkinson, permanent secretary of the American Medical Association, transmitting a resolution adopted by that association at its session held in Detroit in June, 1892, appointing a committee of five, instructed to meet a like committee from the State Medical Society of New York and the State Medical Association of New York for the purpose of adjusting all questions of eligibility of members of the State Medical Society of New York to membership in that association, and notifying this society that the committee in question had been appointed, consisting of Dr. N. S. Davis and Dr. John H. Rauch, of Illinois; Dr. William T. Briggs, of Tennessee; Dr. Dudley S. Reynolds, of Kentucky; and Dr. Willis P. King, of Missouri.

The evident intention of this resolution was to request that this society appoint a similar committee to confer with the committee named, although the resolution as transmitted does not say so. It is difficult to see what purpose such a conference as is proposed could serve. The American Medical Association is very properly its own judge of what shall be the qualifications required of its members. It is a voluntary association, responsible to no one, and may change its standard for admission at its will. At its session at St. Paul, in June, 1882, it voted that the Medical Society of the State of New York was not entitled to representation in it because the code of ethics adopted by that society essentially differed from and was in conflict with the code of ethics of the American Medical Association. The status of affairs to-day differs in no respect from what prevailed in 1882, save that a year or two later the American Medical Association adopted an explanatory declaration which practically interpreted its own code to mean the same as the code already adopted by the Medical Society of the State of New York. It did not, however, rescind the vote of disfellowship adopted in 1882, but, on the contrary, at the recent meeting in Detroit, renewed it, and extended it to embrace not only this society as an organization, but also all persons who affiliated with it. At this same meeting also it appointed a committee to report upon the revision of its own code of ethics. There is, therefore, no certainty as to what the future code of ethics of the American Medical Association will be. It would be highly improper for the Medical Society of the State of New York to assume in any way to dictate to, or even suggest to, any organization not subordinate to it what ethical standard, if any, such an organization should adopt. It must content itself with regulating its own standards, as it now does, suggesting, in turn, that it is equally indelicate for organizations which have no supervising relation to it to extend advice as to its internal affairs. Practically, the relations of the Medical Society of the State of New York to the American Medical Association are the same as those which it sustains to the British Medical Association, the Canadian and Ontario Medical Associations, and to the medical societies of the various adjacent States to which it is in the habit of sending delegates annually—viz., the relations of courtesy and comity. All these medical organizations named continue to receive with due honor and respect the delegates appointed by this society, and doubtless

whenever the American Medical Association shall signify its desire that this society shall again send delegates to its meetings such delegates will be sent. The Medical Society of the State of New York, however, must meanwhile be content to do its own work in its own way, awaiting the pleasure of the association in question. Nevertheless, since a failure by this society to appoint such a committee as is contemplated in the communication from the American Medical Association would doubtless be construed by many who are still ignorant of the real relations which exist between the two organizations as displaying a factious and quarrelsome spirit, and as a matter of simple professional comity, I would advise that a committee of five be appointed by this society to meet the committee of the American Medical Association as requested.

*The Code of Ethics.*—In the course of the discussions which have been provoked by the action of the American Medical Association just alluded to, it has come to the knowledge of your president that many of the physicians of this State are convinced that, in view of the present state of general enlightenment prevailing throughout the State of New York, and the safeguards which by legal enactments are thrown about the entrance into the medical profession, it would comport more with the dignity of the medical profession, and would enhance the respect in which it is held by the general public, if all specific rules of ethical conduct were elided from the by-laws of the State Medical Society, and if the regulation of such matters were hereafter left to the judgment of individual practitioners influenced by the well-known consensus of professional opinion and local custom in the places where the work of each is being carried on. Among a large number of representative physicians from all portions of the State with whom I have conferred on this point, I have found a singular unanimity of feeling on this subject. The only hesitancy which any have expressed has been as to whether it would be wise, since practically this is already the present status of the profession in this State, to make any movement looking to a formal elision of a code from our by-laws, lest it should revive acrimonious discussion, and reawaken strife that would be detrimental to the higher interests of the profession in this State. By far the greater weight of the opinions which I have been able to elicit has, however, been that no such result would follow, but that, on the contrary, such action would tend still more to heal old differences and bring together all the elements of the medical profession in this State. Such is also my own mature opinion, and, further, it has seemed to me that at present, when there is a general revival of interest in the matter of professional ethics, as is evidenced by the discussions which are now going on in the medical journals of the country, and when this question of code is again unavoidably brought to the attention of this society, it is a specially favorable moment for taking this final step. At the present time the only allusion in the by-laws of this society to a system of medical ethics is the very brief Section 8 of Chapter VI, which merely says:

"The system of medical ethics adopted by this society, February 7, 1882, shall be considered authoritative to govern the medical profession in the State of New York."

I would recommend that this section be dropped *in toto*. The effect of such action would be to leave this State Society without any formulated code of ethics, and to relegate the code of 1882, together with that of 1847 and 1823, to the domain of history, though ever remaining of interest and value to the student of the development of ethical standards in the medical profession of this State.

*A National Quarantine.*—Prominent in the thoughts of both physicians and people at this time are considerations as to safeguards against the invasion of this country by cholera, the danger of which all the lessons of the past warn us is imminent. Action has already been taken by many of the county societies of this State urging upon Congress the enactment of comprehensive laws establishing the national regulation of quarantine. Doubtless at an early period in this meeting this subject will engage the attention of this society, and will receive thorough consideration at your hands.

It is to be hoped that Congress will not be satisfied with hasty legislation intended only to meet a present emergency, but that it will forthwith institute a committee of inquiry that shall thoroughly investigate and consider all matters pertaining to national sanitation, which shall mature a report which shall result in the enactment of permanent and comprehensive laws in this department of the public welfare.

*The Programme for Scientific Work.*—It is now my privilege to submit to you the most important of the matters which can engage the attention of this society—viz., the programme for scientific work, which has been arranged by the business committee. This committee was appointed soon after the adjournment of the last meeting of the society, and at once set about perfecting such arrangements for scientific contributions as it believed would be to the interest of the society. Being persuaded that a systematic arrangement of topics for discussion would be desirable, for the present meeting at least, they secured the co-operation of gentlemen especially qualified to advise them in special fields of medical work, to whom they committed choice of topics and essayists in their special departments. They omitted to send out the general circular inviting contributions, which has been customary in the past, for the reason that the brevity of the session of the society would not make possible the presentation to it of any large number of miscellaneous papers if the selected topics were to be discussed as was planned. The committee were assisted by Dr. William Browning, of Brooklyn, who arranged for the discussion for the morning of the first day upon Epilepsy; by Dr. Egbert H. Grandin, of New York city, in arranging for the discussion on the Relative Value of Certain Obstetrical Operations; by Dr. V. P. Gibney, of New York city, in arranging for the discussion upon the Management of Suppuration complicating Tuberculous Disease of the Bones and Joints; and by Dr. H. L. Elsner, of Syracuse, the vice-president, in arranging for the discussion upon Newer Methods of Diagnosis and Treatment of Stomach and Intestinal Diseases. The programme as completed is already in your hands. It is obvious that, for the successful and easy carrying of it out, the division of time arranged by the



committee must be rigidly adhered to. I would recommend that the society, immediately upon the close of this address, formally accept the order of business as presented in the programme submitted by the Business Committee, and direct its presiding officer to strictly enforce it.

A large number of gentlemen appear here as delegates this morning for the first time. It is with sincere pleasure that I welcome them to the privileges of this society, and urge that they will freely take part in all its business and discussions. With equal pleasure do I tender the privileges of this meeting to those invited guests who have consented to add their presence and scientific contributions to the work of the session.

I now declare this the eighty-seventh annual meeting of the Medical Society of the State of New York open for the transaction of business.

### Original Communications.

#### ASEPSIS OR ANTISEPSIS IN NASAL SURGERY?\*

By R. W. FREUDENTHAL, M. D.,

ATTENDING LARYNGOLOGIST TO THE GERMAN POLIKLINIK;  
VISITING LARYNGOLOGIST TO ST. MARK'S HOSPITAL AND THE MONTEFIORE HOME.

As antiseptic wound treatment in general surgery progressed, antiseptic treatment in operations of the nose grew more popular, and especially of late years has been favored by many voices.

But the variety of methods proposed for this purpose gives evidence of a very undecided manner of applying antiseptics in the nose, as some emphatically speak in favor of the open-wound treatment, while others recommend the nose to be "hermetically" closed. And the therapeutic methods used by each side are naturally in accordance.

To arrive at a clear conclusion we must decide the following questions:

1. Is a strict antiseptic possible in nasal surgery?
2. Is it a necessity?

The difficulty in treating antiseptically a cavity opening in all directions, with its intricate accessory channels, is beyond a doubt. The peculiar formation of some nasal septa or turbinated bodies is at times so unfavorable for our purposes that, for instance, relatively large masses of secretion could be stemmed behind a deviated septum, and, through decomposition, might produce putrefaction. Drainage, therefore, is impossible. The question now arises, In which way do the present methods reach their final purpose of a quick and good recovery? Or, at least, how can the methods of nasal antiseptics now in vogue be brought in accord with our theoretical and practical experience?

Just on account of the novelty of nasal surgery, only little on this subject has been published, and these comparatively few articles have been published mainly by American laryngologists. Dr. Rice,† in a worthy article,

recommends the following *modus operandi*: "Some days before the operation" he syringes the nose with an antiseptic solution twice daily. As he uses one to two quarts of fluid each time, he recommends beginning with a saline water, and after this sublimate (1 to 4,000) in a lesser quantity. Or he uses a weaker solution of sublimate (1 to 10,000) alone, syringing the nose with this through the retropharynx. As excellent as his mode appears at first sight, we must stop to consider whether we thus can accomplish the desired end. Referring to the preliminary disinfection, what is gained by it? Should pus have gathered at any point, it will return of an evening if syringed in the morning, or in the morning if syringed in the evening, unless the primary cause has been removed, so that disinfecting directly before the operation will be as absolute a necessity as though no antiseptic had been used at all. Should there be any other detrimental factor, the result would be the same. A disinfection begun some days prior to the operation will be, to say the least, useless.

And if asked whether this same antiseptic syringing be expedient, even directly before the operation, I should also emphatically disapprove of it. My reasons for this are the following: Gentlemen, you all know the many different kinds of bacteria which are inhaled and remain in the nose. And in connection with this I quote these lines from the interesting observations of Dr. Jonathan Wright\*: "Ten litres of laboratory air," he says, "contained four molds and one hundred and twenty-five bacteria. Ten litres of laboratory air after passing through the nose contained one mold and twenty-four bacteria." Although these data vary, as Wright already mentions, they prove the large amount of living bacteria deposited in the nose. And now think of the effect of antiseptic measures against these. Do you for an instant believe that a few minutes' spray of a weak antiseptic solution could kill those bacilli which have to lie for hours in concentrated antiseptic solutions before they die off? Granted they are not killed, but, by the force of the spray, are removed from the nose, which is not plausible, considering the depth of intricate chambers lined with mucous membranes in which they lie—even then little is gained. To verify this, I cite Miquel, who has found that in the ordinary atmosphere of a large city "there are two thousand bacteria to the cubic yard, the air of a room or an old house in winter showing forty-five thousand to the cubic yard, while the wards of a long-used hospital show ninety thousand germs in the same space. . . . Of course, all these micro-organisms are not infectious, and . . . it has been shown that there are probably a few species which are chiefly active in producing septic diseases and suppuration, notably *Staphylococcus pyogenes aureus* and *albus*, the streptococcus of erysipelas, etc."

Therefore, after freeing the nostrils of all germs, the next inspiration will refill every chamber with fresh parasites, and, by the time the spray is laid aside and the instruments taken in hand, the condition of the nose is almost as bad as at first. A reply would be that this theory

\* Read before the Section in Laryngology and Rhinology of the New York Academy of Medicine, November 23, 1892.

† Antiseptic Nasal Surgery. *New York Med. Jour.*, March 2, 1889.

\* Nasal Bacteria in Health. *Jour. of the Am. Med. Assoc.*, Sept. 21, 1889.

would have like effect in operations upon the extremities or any part of the body, which is not true, because, firstly, you can irrigate the same continuously, and, secondly, there does not exist the inspiratory action which we have in the nose. The air with its contents passes through the nose, even when we try to inhale through the mouth only. The normal condition of a healthy body rids itself of most of these germs, but those remaining are the important ones, which are surely not killed by our present methods.

That the operation itself should be performed with absolutely clean (*i. e.*, sterilized) instruments, that the operator himself must have clean (*i. e.*, aseptic) hands—about this there is no question at the present day, and I am not going to dwell upon this subject any longer.

What, however, should the mode of *after-treatment* be which we now begin to discuss? In that the authors do not as yet agree. To me it appears that occlusion of the nostrils is favored at present by the majority. For different reasons I have to speak against it. First, I consider an absolutely *hermetically* closed nostril, as Roe\* wants it, an impossibility; whether we use flexible metal and wrap it in cotton, or cotton alone, or iodoform gauze, or the kind, it still remains an impossibility. No matter how closely we pack the material, it will not prevent air from passing through the retropharynx, or the accessory cavities of the nose, to the operated spot, and this air is not always filtered, as there is generally some hidden space which the tamponing has not fully occluded, allowing the unfiltered air to pass through. A packing applied to exclude all air, if at all possible, would have such bad general effects that one would desist from using it again. Think merely of the consequences following the damming back of air into the accessory cavities; furthermore, the congestion caused by strong pressure upon the blood-vessels and its effects upon the tissues of the face, and you will easily conceive that a "hermetic" occlusion is out of the question.

Where, however, the tamponade—I do not mean "hermetic" occlusion of the nose—is used for the purpose of further disinfecting as an antiseptic tamponade, there, even in a good course, we can not speak of a *prima intentio*, according to the opinion of Tavel,† but only of a normal aseptic course. Tavel reserves the *prima intentio* only for those cases in which healing takes place without any further post-operative antiseptic procedures.

That, furthermore, all these dressings are foreign bodies, which generally produce local irritation and sometimes edema which reaches the forehead. These are my personal observations, made repeatedly, which caused me to do away with a firm dressing whenever possible.

Finally, it is too well known that these dressings, due to irritation of the glands, cause a flow of their secretion, or, in other words, give rise to humidity. And in just such humid states do micro-organisms thrive best. Thus, in removing these dressings, we always see a large amount

of pus and decomposed fluid. We have artificially produced the best nutritive power for the development of the bacilli. Were we, however, to deprive the bacilli of this nutritious element—the element of moisture—we would stunt the growth of the micro-organisms. And if we were to provide that blood, pus, and other secretions of the wound dry up, we would then absolutely prevent the development of lower bacteria.

We have, therefore, to return to the open after-treatment recommended some years ago by Dr. Rice. That in this case strict antiseptics does not at all exist is beyond question.

Thus, after having seen that neither before nor after the operation absolute antiseptics is possible, we come to the second very important question, *Is, in nasal operations, antiseptics at all necessary?*

Permit me to attract your attention to a few side remarks somewhat foreign to our present topic, but where we have reason to expect the greatest results from asepsis—namely, obstetrics and gynecology. "When Lawson Tait published his first successful operations," says I. Veit,\* "not a few physicians were at first incredulous. Only to a small degree did the first thousand of his laparotomies remove their antagonistic views; the second thousand left only few who still doubted the truth of his results, so that the third thousand, which will be shortly published, can do little more than corroborate and confirm the now generally adopted views. The fundamental principles of Tait's aseptics have proved to be correct. This remains a truth, whether or not it be recognized by this or that surgeon. We know that the results of gynecological laparotomies depend essentially upon how minutely and thoroughly the principles of asepsis are carried out in all its details. In gynecology as well as in surgery asepsis is potential." In speaking of the different stages of a confinement, Veit comes to the following conclusions, which are interesting to us: 1. An internal disinfection—*i. e.*, of the genitals—is *never* indicated under normal circumstances. 2. A disinfection after the birth in normal cases is *not* indicated either externally or internally.

Now, if we compare the possibility of infection that is so very great in a confinement with those relatively simple procedures in operations of the nose, we must declare that when we have given up antiseptics in obstetrics we will find it much easier and our results more successful in nasal operative work. Gentlemen, it is bold to express views to you against antiseptics—you who, so to speak, have grown up with the antiseptic period, to whom the antiseptic methods have gone *in succum et sanguinem*; to you who have had ample occasion to see the immense advantages which antiseptics has brought to thousands and thousands of people; but, gentlemen, thinking asepsis so far superior to antiseptics, I hope the time not too distant when we can say that antiseptics was only a herald to asepsis. And now to go into details.

Independent of the fact that artificial means (antiseptics) seem to be uncalled for in a natural process like child

\* The Aseptic Method as applied to Intra-nasal Surgery. *Verhandlungen des X. internationalen medicin. Congresses*, Bd. iv, p. 90.

† Die Sterilität der antiseptisch behandelten Wunden unter dem antiseptischen Verbands. *Correspondenzbl. f. schweizer Aerzte*, Nos. 13 and 14, 1892.

\* Asepsie der Geburtshülfe. *Berlin. klin. Wochenschr.*, May 16, 1892.

birth, we yet acknowledge that through the act of birth the whole genital canal becomes an open wound, truly gives freest scope to infection. But with what ease do all these parts heal in most cases without any aid save Nature, which teaches us that she does her work best when not interfered with! And so obstetrics has made its first rule: *nil nocere*. Why not transfer this powerful law to rhinological operations? Do not harm your patient with antiseptics or any other harmful means where a simple method like asepsis will fulfill every indication.

There are few organs in the human body which are as susceptible to all manipulations as the mucous membrane of the nose, and therefore the less we manipulate it the better it is. And when such extensive lesions in the uterus and vagina usually heal *per primam* without our doing anything for them, why should not this be possible in the nose? When Lawson Tait has successfully performed thousands of laparotomies in an aseptic manner pure and simple, why should we not succeed with this method in much smaller operations?

Besides, when we apply antiseptics in the abdominal cavity we at least know that, to a degree, we do no harm. In the nasal cavity, however, it is quite different. Mercury, salicylic acid, and carbolic acid have a decided noxious influence upon the physiological function of the mucous membrane of the nose—an influence certainly not noticeable at once, but appearing after the operation is a thing of the past. Have you not had patients come to you having had a piece of bone or the like removed by some other specialist, claiming they could breathe better, but were still very uncomfortable? Such patients are now suffering from a dry catarrh or the like, due to the result of our antiseptic remedies, which affected badly the physiological function of the mucous membrane of their nose. And it is just this physiological action of the mucous membrane which is destroyed by our operative antiseptics, and nothing has been more pernicious in my experience than the use of mercury. This idea is confirmed by experiments made by Dr. Walther, of Bern,\* which prove that it is mainly the sublimate which destroys the physiological function of the mucous membranes. Therefore I would emphatically approve of doing away with all antiseptics, especially mercury, as long as feasible.

It is peculiar that the nose, and especially the nasopharynx, are almost inaccessible to antiseptic methods, yet, strange to say, these parts heal, as a rule, quicker than all others. Since I began in Berlin operating on adenoid vegetations until this day I have performed about six hundred such operations. At first I used Meyer's knife, and since three years Gottstein's curette—instruments when used usually cause some bleeding, but not much. I have never applied antiseptics, either before or after the operation. Without any preliminary manipulations, I attacked the pharynx with clean—i. e., sterilized—instruments, scraped away the vegetations, and did nothing further. As a matter of course, I have prescribed a weak gargle—as boric acid or hypermanganate of potassium—but more as a pla-

cebo than for any other reason; and never have I seen any infection as a result of my operative interference. Never a case of sepsis occurred, and yet no antiseptics were ever applied.

Now, how were all these cures brought about? It seems that the healing power of Nature is now more and more recognized. Herbert J. Waterhouse,\* of Edinburgh, through experiments and clinical observations, has demonstrated the anti-bacteric power of the peritoneum. Bou-chard and others have observed the destruction of bacilli by the spleen and their elimination by the kidneys, as in typhoid fever. Finally, Buchner† has proved, only lately, the bactericidal effect of the blood serum. He has shown that every species of serum is capable only of killing a limited number of certain kinds of bacteria, and has found that there are certain albuminous bodies of the serum which possess this bactericidal effect. For these latter he proposes the international name of alexines. Thus we see that the body takes care of itself and defends its own immunity against bacteria. "We have abundant reason, therefore," says White,‡ "to believe in a general antagonism between the body-cells and the micro-organisms of disease, even if we consider the question of phagocytosis as still an open one. It follows that the theoretical propriety of non-interference with these tissues can not be doubted"; and Lister has recently admitted and accepted this view, remarking that the floating particles of the air having been shown to be less harmful than was supposed, 'we may possibly dispense with antiseptic washing and irrigation,' provided, always, that we can trust ourselves and our assistants to avoid the introduction into the wound of septic defilement from other than atmospheric sources."<sup>§</sup>

From this standpoint we will be able to understand why most of the operations in the nose heal so readily, and we comprehend just why the adenoid vegetations must heal so quickly, even where the asepsis is but used as a cleansing means for hands and instruments. As long as we do not carry micro-organisms into the field of operation, they heal undisturbed.

For this reason, I think, we should have ideal results in healing in the nose, if the patients would not become infected afterward. And this after-infection, as you know, is not rare. As an illustration let me cite a case that occurred last year in my practice. A colleague sent a patient with hypertrophied turbinated bodies for treatment, remarking that the patient had been galvano-cauterized already by a specialist, but the reaction had always been extraordinarily severe (high fever, swelling of the tonsils, headache, etc.). He thinks, the doctor continued, that the specialist in question had not used clean instruments and hoped to see better results from my treatment. Although I was more careful regarding the asepsis than I usually am, I am sorry to say that my experience was no better than

\* Virchow's *Archiv*, Bd. cxix, p. 342.

† Ueber die Schutzstoffe des Serums. *Berl. klin. Wochenschr.*, No. 19, 1892.

‡ I. William White. Antiseptics and Asepsis, in Hare's *System of Practical Therapeutics*.

§ Italics mine.

\* *Correspondenzbl. f. schweizer Aerzte*, loc. cit., 1892.



the first. The patient showing the same reaction, I had to use every power of persuasion to cauterize her nose a second time. This time I applied every *antiseptic* precaution to satisfy myself. I applied the antiseptic solutions and dressings recommended, but I was not a little surprised to find even this time high fever, amygdalitis, and all the other symptoms following as before. After a careful examination I found that factor which is the cause in many similar cases. In the patient's home, while under treatment, one or the other of her four children were sick with angina follicularis, which infected the mother. The infection happened, therefore, entirely independent of the operation through contact with a patient suffering from an infectious disease. In a closely inhabited city like New York, where such diseases exist throughout the year, this is not surprising.

Last winter I made inquiries of the surroundings and circumstances of a series of patients and found—I will not detain you with more details of this tiresome work—that about forty per cent. of all reactions after an operation could be traced to an infection at the home of the patient, either through angina, diphtheria, scarlet fever, measles, or other infectious disease. At times where the patient lived in a large tenement house, although suspecting the cause, I could not prove this fact, as the patient did not know his neighbors. I have, therefore, gained the conviction that almost all the cases of our nasal operations which have been strictly aseptically performed and nevertheless show strong reaction, have been infected in the above manner, and I have now made it a custom every time before operating to ask whether there is an infectious disease in the house of the patient.

That, in spite of the greatest precaution, severe disease of the brain, etc., may happen, demonstrates the case of Dr. Quinlan, as well as a case lately published by R. Wagner, in which last case a fatal meningitis occurred after galvano-cauterization of a middle turbinated body. Wagner believes that it is impossible, in spite of the greatest care, to render the nose entirely antiseptic—a view which is upheld by Professor Schech, the reporter of this article in the *Internationale Centralblatt für Laryngologie*, page 9, 1892.

From the theoretical deductions given you this evening results my mode of practicing. I leave out all antiseptic sprays and washings. When I want to remove secretions from the nose, I spray gently with lukewarm sterilized water. After applying a clean solution of cocaine, I ask the patient to blow his nose not too gently. The purpose of this blowing is to irrigate the whole field of operation with the glandular secretions of the mucous membrane, which is of course aseptic. By these means I have made the field of operation for our purposes sufficiently aseptic, and thus all preparations for the operation are finished. The latter is performed in the usual way. Professor Tavel,\* of Bern, recommends to keep the wounds humid with the solution of salt and soda used in Bern. This latter consists of the physiological solution of salt, seven and

a half per cent., and caustic soda, two and a half per cent. I think this solution ought to prove satisfactory where there is a preliminary cleaning necessary. It possesses the alkalinity of the blood and is not destructive to the physiological function of the mucous membrane. I have been using it for about three months to my satisfaction. It is always good, if we can, to stop the bleeding while the patient is in our office. A thick layer of blood covers the whole wound, and the protective qualities of the blood serum prevent any infection for the time being. The blood soon coagulates and we get a protective that keeps away all infective germs. Frequently, however, this natural protection falls off afterward or is removed by strong blowing of the nose or new bleeding, and, if the patient then enters an infectious atmosphere, he can easily be infected. Now, to preserve the original protection I use collodium especially thickly prepared, which I spread over the whole wound with cotton. Formerly I experimented for the same purpose with the collodium commonly used and with colophony without getting satisfactory results. Now, after having coated the wound with a thick layer of collodium, I introduce a small plug of cotton just within the nasal entrance, instructing the patient to remove it as soon as he comes home. This is done for the purpose of protecting the wound from the cold air. In the beginning I found it good to apply the collodium daily. The after-treatment is of course an open one. E. Aronsohn,\* of Ems, has of late recommended dermatol for this purpose, but I have no experience with it. Pyoctanin is very much lauded by Bresgen.† In another article‡ I have spoken at length about the use of trichloroacetic acid. I can not recommend it. The only thing I use, if necessary, is lukewarm water, to which I add now Tavel's solution. With these simple procedures I think just as good results can be reached as with a complicated mass of antiseptics. I even believe our after-results will be much better when we take care of the physiological functions of the tissues, which so far have been entirely neglected.

It is my simple belief and conviction that patients who are healthy do not harbor pathogenic germs. For this reason I earnestly recommend and ask of you to give the aseptic treatment a fair trial. If your results give you as favorable healings as mine, I shall feel more than repaid by this contribution.

1054 LEXINGTON AVENUE.

**Bellevue Hospital.**—Dr. John Winters Brannan has been appointed a visiting physician to the hospital.

**The Death of Dr. George Jackson Fisher, of Sing Sing, N. Y.**, is announced as having taken place on the 3d inst. The deceased, who was sixty-eight years old, had been a well known practitioner for many years, and was noted as having collected a very extensive and valuable medical library, particularly rich in books on the history of medicine and on teratology. He had been president of the Medical Society of the County of Westchester and of the Medical Society of the State of New York.

\* *Deutsche medicin. Wochenschrift*, Nos. 29 and 30, 1892.

† Die Verengung des Pyoctanins in Nase und Hals, *Deutsche med. Woch.*, No. 24, 1890.

‡ *New Yorker medicin. Monatsschr.*, January, 1892.

\* *Loc. cit.*

## VEGETABLE MEDICINES OF THE IPECAC CLASS.\*

By H. H. RUSBY, M. D.  
PROFESSOR OF BOTANY AND MATERIA MEDICA IN THE  
NEW YORK COLLEGE OF PHARMACY

The group of medicines here considered is a very large one, its development having resulted partly from the medical practices of aborigines, and partly from those of educated physicians. Every physician whose practice extends among the lower classes will appreciate the fact that savages are deeply impressed with the importance of emetics and cathartics. To these they assign simple names which indicate such properties,† and in different sections where the same or similar languages are used, different articles come to be designated by the same or similar names. While agreeing in the production of this one effect, these medicines may be as unlike in physiological action and therapeutic application as their plants are in botanical structure. They may but present symptomatic analogies. Upon the introduction of a member of such a group to civilization, if it chance to "take," the others are quickly brought forward. Ipecac was thus introduced during the seventeenth century, and, although proposed as an antisynteric, its powerful emetic properties made a deep impression upon the medical practitioners of that early period, so that from the very first it occupied a very prominent position, and soon became a sort of a type, around which were grouped not only the other varieties of ipecac which were sought out and brought to Europe, but all drugs possessing properties at all like it. This position ipecac has maintained, as its usefulness and importance have grown almost steadily during two hundred years, and its group has received constant accessions up to the immediate present. So large indeed has it become that several special works in different languages have been devoted to the enumeration and description of its members, the most recent being the *Étude des ipécacuans*, by Edouard Jacquemet, published in Paris in 1890. As a matter of mere historical interest, it would, perhaps, be not worth while to occupy your time with a consideration of these medicines. It is the practical features of the case to which I wish to direct your attention. Not only is it desirable, in the case of such important agents, to discriminate clearly between their several special fields of application, but it is no small matter to know where and how to search intelligently for a satisfactory substitute in case of emergency. The recent and present scarcity and costliness of ipecac, with its consequent increased tendency toward adulteration and inferiority, almost constitute an emergency, or are liable at any time to do so.‡

My purpose is, therefore, to classify this great group, separating those members which exhibit mere resemblances to ipecac from those which are really like it in physiological action, the only sound basis of therapeutic application. For such comparison I first present an analysis of the properties of ipecac itself.

The action of ipecac lies in two entirely distinct and fully understood directions, besides producing certain other as yet imperfectly understood effects. The first is its local irritation; the second, its effects, after absorption, upon the vagi. Its imperfectly understood effects are the expectorant, cutaneous, and hepatic.

Its locally irritant effects are very simple and exhibited both externally and internally—externally, in the hyperæmia, pustulations, and even ulcerations produced in direct experiment and in collecting and working with the drug; internally, in the sneezing and asthmatic seizures dependent upon inhalation, as well as in the nature of its effects upon the digestive mucous membrane. We find that stomach administration produces emesis much more quickly than other modes. That this difference is due to local irritation is shown by the fact that agents which tend to mollify such irritation, like bismuth and hydrocyanic acid, postpone the emesis. Direct observation has shown, moreover, that there is hyperæmia and increased temperature of the intestinal mucous membrane, and often purging, after contact of the ipecac or during its elimination by that tissue.

Its effect upon the vagi is indicated by the occurrence during intense poisoning of symptoms corresponding to those caused by section of the vagi—namely, sudden impeding of the lungs. When death occurs as the result of ipecac poisoning, it is usually in the form of respiratory paralysis. Moreover, if the vagi be first severed, the hypodermic administration of the active constituent of ipecac—emetine—will not produce emesis.

Some of the effects of ipecac, notably vomiting, are explained by these two properties. The vomiting is doubtless due more especially to the central action of the drug, because it is of slow action, as though the local effects were not sufficient until after the central action had come to their aid. Sometimes repeated doses will fail to produce emesis and the subject will become narcotized.

Cerebral congestion is found to be entirely indirect, due to the strain in vomiting.

The evacuation of bile, both by stomach and bowels, is partly explained by the nature of the vomiting, in which the diaphragm is fixed from above, and the stomach, liver, and gall-bladder are squeezed between it and the abdominal walls. But, in addition to this mechanical evacuation and stimulation, it appears that the liver must be affected in some other way, for the bilious stools are even more pronounced after toleration is established and all tendency to emesis is absent.

We do not understand, or at least are not agreed as to, the expectorant action of ipecac, especially upon the bronchial lining, its diaphoretic action, or its occasional reduction of cutaneous temperature. In its expectorant action it increases the secretion of the parotid glands and of the mucous membranes of the mouth, nose, pharynx, and bronchial tubes. Its action upon the bronchial tubes is especially marked in children, and is powerfully accentuated by combining with it some synergist, the result being greater than would be accounted for by the result of the one plus that of the other. The same may be said of its

\* Read before the Practitioners' Club of Newark, New Jersey.

† As, *ipé-kac-gene* = a creeping plant which will cause vomiting.

‡ Since this was penned, accounts of extensive adulteration of ipecac have appeared.

action upon the skin, and it is important to note that this action is not strong, regular, or certain.

Ipecac exerts no action upon the pulse, blood-pressure, and general temperature, in most cases.

Although not accepted by most physiologists, it would appear as though ipecac must relax the muscles of the arterioles by peripheral paralysis of the vaso-motor nerves, at least in certain parts.

For therapeutical purposes, and especially in estimating the comparative value of any similar agent, the important points to note are that the effects of ipecac are diverse; that usually only a part of them are desired, the others being often very undesirable, or even intolerable, and that its most useful action is usually the most difficult to secure, except by combining something with it. According as these disadvantages are shared by its associates, their degrees of usefulness and value should be accorded.

With these facts in mind we are prepared to briefly consider the numerous claimants of ipecac-like properties. A great many of these, it must be remembered, have never been investigated. All that we have to guide us in estimating them is their domestic repute, some hints as to composition, and their botanical relationship to plants whose action is well known.

Those which we shall first consider may be regarded as the really ipecac-like group. In their domestic use, and both in their symptoms and mode of action, they are strikingly like ipecac, and almost any of them would make a good substitute. If ipecac were to become lost to the world and we were obliged to study this group for the best article to replace it, it is doubtful if therapeutics would not be a gainer by this disclosure of her riches, and by finding the enforced substitutes superior to the standard which they replaced.

Apomorphine is too well known to call for description. It may better be classed as an alternative than as a substitute for ipecac, for, while in many cases it is inferior, in other cases it is superior. Unlike ipecac, it has no local action.

Among the near botanical relatives of ipecac we find a number of similar agents. *Randia dumetorum* yields a fruit a portion of the pulp of which seems to act in a manner identical with that drug. But in a pure form—for it must be carefully separated from the remainder of the fruit—it is hardly as accessible as ipecac.

Although ipecac is commonly called a *Cephaelis*, it is doubtful if it should be held separate from the very large genus *Psychotria*, many of whose species apparently possess properties similar to those of our own drug, and which, it is fair to assume, contain the same active constituent. Their comparative value would therefore depend upon their percentage of active constituent and their freedom from undesirable constituents and properties. Among them the *Psychotria tomentosa* is prominent, and has been used as an adulterant. The similar adulterant yielded by *Psychotria emetica* is called the violet-striped ipecac. The black-striped ipecac perhaps comes from the same species. The *Psychotria undata* yields a similar drug, and the large-ringed ipecac is yielded by *Uragoga granatanensis*. *Richardia scabra*

yields the small-ringed ipecac. But, while all these are so similar to ipecac that they are in reality forms of it, the difficulty is that they are equally inaccessible, being small roots, growing in the same general part of the world, and equally difficult to collect. Still their availability must never be lost sight of.

The violet family also presents a rich field of search for ipecac drugs. The emetic properties of some common violets have long been known and extensively utilized. Their similarity to ipecac is attested by the nature of the active constituent *violin*, so much like emetine as to have long supported the claim that it was an impure form of that alkaloid. This view has now been abandoned, though the precise nature of the body is yet undetermined. Besides the proper violets—*V. tricolor* and *V. odorata*—the *Ionidium* in this family possess in a marked degree the same properties. The *Ionidium ipecacuanha*, Vent., contains five per cent. of the violin, and is not only ipecac-like in properties, but, because of its close resemblance, it has been used as an adulterant, its root being known as white ipecac. The *Ionidium parviflorum*, *I. itouba*, *I. atropurpureum*, *I. poaya*, and *I. marcuttii*, all share more or less the same properties and uses. Should it ever be found necessary, practitioners would doubtless find themselves very well contented to rely upon a plentiful and good stock of *ionidium* root for at least most of the purposes for which ipecac is now used.

Last of this group we consider the family which apparently takes highest rank among those which we are considering—namely, the *Meliaceae*, not represented with us except by the *Melia azedarach*, the pride of India or flower of Paris, cultivated in the open air of our Southern States. Some of the members of this family are too violent, like the *Walsura piscidia*, a fish poison of India, described as “a dangerous emmenagogue and violent emetic.” But most of them are mild and efficient. The *Naregamia alata* of India is known commonly as Goanese ipecac, because in the province indicated it is generally used in that way. It has been considerably tried in hospital practice, and the reports say that, as an emetic and expectorant, it has given “results similar to those obtained from ipecacuanha given in equal doses.” Its active principle is a crystallizable alkaloid. Various plants of this family possess names indicative of their properties, as *Trichelia emetica* of Arabia, and *Guarea emetica* and *Guarea purgans* of South America. *Guarea Aubletii* of Colombia is there considered “an excellent substitute for ipecac.” The drug of this family which has been the most thoroughly studied and proved is the bark of one of these *guareas*, probably undescribed and commonly known as *cocillana*. All things considered, it is the most available and desirable of all the ipecac substitutes. As its properties are typical of its relatives in the family and of the class in general, I introduce a condensed sketch of its nature and uses. Professor David D. Stewart, of the Jefferson Medical College, was the first to give it an extended clinical trial, and he concluded that, “as regards the sphere of influence of the two drugs on the respiratory organs, the effects are not unlike those of ipecac, and that it possesses therapeutical properties which render it even su-



perior to ipecac in certain diseases of the air passages in which the latter is often used." These are specified as bronchial catarrh, especially the subacute and chronic forms, when accompanied by scanty or moderately profuse secretion, whether the cough be tight or loose. The cough becomes less frequent and difficult, and the secretion less viscid and more easily expectorated. At the same time loss of appetite is markedly corrected. Some time later Dr. R. W. Wilcox, of the New York Post-graduate Medical School, made an extremely careful series of studies, taking cases as nearly as possible alike, and treating one set with ipecac, another with apomorphine, and a third with cocillana. He concluded that cocillana acts more upon the glands, and is preferable in acute bronchitis in those cases first seen after forty-eight hours. Its effect is long continued, so that doses need not be given at such short intervals. In cases seen earlier he found it best to start expectoration with apomorphine, and keep it up with concillana. In subacute and chronic bronchitis the cocillana was especially serviceable. Its effects are surer than those of either ipecac or apomorphine. It is mildly laxative. It is to be avoided in senile bronchitis. In chronic diseases of pulmonary tissue, cough and expectoration diminish, and night-sweats, inappetence, and constipation are relieved. He says, finally, that it is superior to ipecac and can with propriety entirely supersede it, and that it is superior to apomorphine, except in the early stages of acute bronchitis. The last investigator to present a complete report upon this drug was Dr. J. W. Eckfeldt, professor of materia medica and therapeutics in the Medico-chirurgical College of Philadelphia, who spent two years in systematically studying it before presenting his report. His conclusions are the same as those given above, except that he does not find it counter-indicated in senile bronchitis. He has found it serviceable in pneumonia and hay asthma. He indorses it as one of the finest modern acquisitions to materia medica, and believes it superior to ipecac for all the purposes for which that drug is used.

During the recent epidemic of influenza or grip, leading German practitioners claim to have met with excellent results from the cocillana treatment.

The second group to be considered is one in which the resemblance to ipecac is strong—things which might, under stress, be used in place of it, but which no one would claim as approaching it in efficacy or desirability. The most pronounced of this class are from plants with milky juices, though of diverse botanical relationship. Among them are some of the *Euphorbiaceæ*, notably the *E. ipecacuana* and *E. corollata*. The name of the former is sufficient to indicate its supposed relation to ipecac. But while they determine emesis, expectoration, and diaphoresis, they show their relation to castor oil by combining a strongly cathartic tendency. If given in small doses their ipecac action is by no means certain, while if we increase it we get a very indefinite amount of purging; in some cases uncontrollable and dangerous. After long and persistent trial their use has been mostly abandoned. The natural order *Asclepiadaceæ* furnishes a number of milky-juiced plants which belong in this group, of which the official *asclepias* or pleurisy-root may be taken as the type medicinally. Its

use is not admissible as an emetic, but it is both expectorant and diaphoretic. It seems strange that authors do not agree as to the mode of action of so old, important, and much-used a drug, but by some—and probably correctly—it is put into the stimulant or irritant class, while by others this view is disputed. Certainly it reduces the heart's action and the blood-pressure. If given to the point of emesis it is also liable to purge. The ancient and celebrated *madar* or *mudar*, of Asia and Africa, is a root bark from *Calatropis procera* and *C. gigantea*, related to our *asclepias*. These have been freely urged in substitute for ipecac, but their active constituent seems to be very dissimilar and they act entirely through local irritation. The original use of this, like ipecac, as an antidyenteric, unfortunately sheds little light upon its properties, because of the very indefinite application of the term "dysentery." Both the roots and leaves of the related plant *Tylophora asthmatica*, of India, have been urged in exactly the same way. Except in its tendency to purge, clinical reports show a marked similarity of this drug to ipecac. *Tylophora fasciculata*, *Damia extensa*, and *Dregia volubilis*, all fall more or less clearly into this group. Most of you have probably seen our little plant *Asarum canadense*, or Canada snake-root, which has been so strongly urged for introduction to the pharmacopœia. As its common name indicates, it is an aromatic stimulant. It seems a little strange that the very similar *Asarum europœum* should have been lauded as an ipecac drug, and largely used as its substitute in some parts of Europe. I have not been able to find any information concerning its physiological action to support this view. *Gillenia* yields two species of beautiful North American plants, somewhat related to the strawberry and blackberry, but emetico-cathartic rather than astringent like those plants. The external resemblance of the root of *Gillenia trifoliata* to ipecac has caused it to be used as an adulterant, and, strangely enough, its properties also have been found similar. But it is much less effective, and its common name of Indian physic indicates an important difference in action. There is no doubt, however, that this would serve as a fair substitute in the absence of anything better.

The third group we may call the *tobacco group*. Should one attempt to use tobacco to secure emesis he would find almost the maximum of distress accompanying the minimum of emesis, whereas he should seek exactly the opposite combination. Great nausea and extreme depression would precede the vomiting. If he used it as an expectorant, he would find that while it increased the supply of mucus there would be no stimulus to carry this away. On the contrary, it acts strongly toward paralysis of the respiratory apparatus. Its perspiration is a cold one, accompanying an unhealthy condition of the skin. Lobelia is a drug of the same general type, though much less objectionable. Although its expectorant action can be secured without an extreme degree of disorder, it weakens both the circulation and respiration preceding its emetic action. In tropical America we find a considerable number of related plants, some *Lobelias*, some *Tupas*, and some in the genus *Siphocampylos*, which the natives use to produce tobacco-

like or lobelia-like effects, on account of which they have been compared to ipecac. The natural order *Acanthaceæ* yields various plants, as *Adhatoda*, *Ruellia*, and *Gendarussa*, whose physiological action has not been well established, but which apparently belong to the tobacco group. The same may be said of some bignoniads.

Group 4 are essentially nervines. Their action upon the nervous system may be immediate or it may be through circulatory disarrangements, but in some way the prominent effect is a great modification of the nervous functions. The distinctively cardiant division of this group contains the three *Veratrum*s—*viride*, *album*, and *nigrum*—cevadilla, scilla, *Crinum toxicarium*, and some other related monocotyledonous plants. The powerful depresso-motor effects of these plants are well typified by the almost uncontrollable vomiting of *Veratrum viride*. The vomiting depends clearly upon derangements of the cerebral circulation. Various species of narcissus would appear at first thought to pertain to this group, but there is evidence to show that the resemblance of their action to that of ipecac may be much more real. Very similar in action to these monocotyledons are a number of poisonous *Leguminosæ*—namely, laburnum, baptisia, sophora of various species, *Clitoria ternatea*, broom, etc. Plants whose action is not well determined, but which appear to belong here, are *Datisca cannabina*, *Atriplex hortensis*, and several species of Boerhaavia.

The "harsh" emetics may stand as our fifth group. In kind they are very similar to group 6, but differ so greatly in degree as to introduce a different feature into the effects—namely, the possible production of so great an irritation or inflammation as to cause prostration or collapse. That is, they are irritant poisons and pseudo-narcotics. It will at once occur to you that these characters will admit a large number of drugs, for so many of our powerful medicines are capable of producing this form of emesis. But I am here restricting myself to those things in which the effects for which ipecac is used are so conspicuous among the other properties, that the articles have been proposed as substitutes for that agent. Even thus the group is large enough and varied enough to be properly subdivided. Some of the members, in moderate doses, effect no conspicuous action upon the bowels sufficient to stamp them as cathartics. To this subdivision may be referred the powerful irritant meze-*rium*, some plants of the buttercup family, perhaps the *Wickstroemia Forsteri* of Tahiti (related to the tea plant), and some irritant poisons of the natural order *Menispermaceæ*. In the other subdivision the primary tendency is toward catharsis, the emesis postponed until after catharsis has failed to be excited or to relieve. This group includes the drastics, gamboge, podophyllum, elaterium, bryony and melon-root, *Cyclamen europeum*, and others of the primrose family (not the evening primrose family or *Onagrarieæ*), and perhaps *Calophyllum inophyllum* and the gratiolas. The *Vandellia diffusa* seems to be in some respects like these, in others like the tobacco group. Croton oil, curcas seeds, *Aura crepitans*, etc., of the natural order *Euphorbiaceæ*, appear to belong here, while others of this large family must be ranked, as previously stated, much nearer the ipecac in properties and mode of action. Attention is called to the

fact that none of these harsh emetics are true nervines. As I have said, they may be pseudo-narcotics, but the nervous effects are reflex and secondary, resulting from the severe irritation. *Iris versicolor* and colchicum might be placed here, though they would require special characterization, especially colchicum. The profound disturbances which are a prerequisite for emesis by these plants render them all not commendable as ipecac substitutes.

Group 6 are also irritant emetics, though they can not properly be called harsh. They are those of the mustard type, act only when introduced by the stomach, and then not through absorption. They are, like the next group, more efficient when administered in bulky form, but differ from that group in their specific irritant properties. The term "reflex emetics" has been applied to them, as well as to the last. Besides the mustards, the group includes various plants of the *Capparideæ*, the family yielding our capers, and the *Stanleya pinnatifida*, which vomited a party of early explorers under the botanist Nuttall, they having eaten it for its large cabbage-like leaves.

Another group, more distinctly irritant than these, yet not so irritant as the harsh emetics, may be laxative, but this property is slight and incidental. They act as emetics through their direct effect upon the gastric nerves. Their stimulant-expectorant powers are marked. The best known of them contain saponin in considerable quantity. Here we place senega, saponaria, quillaia or soap-bark, sarsaparilla, (in part), and the horse-chestnut. Besides our official *Polygala senega*, a large number of species of polygala are used in various parts of the world in the same way. Most notable is the *P. poaya*, of Brazil.

The last group to be considered is the most distant of all from the true ipecac. It is well illustrated by the *Eupatorium perfoliatum*, the old-fashioned boneset or thoroughwort, which, taken in the form of extract or fluid extract, produces none of its sudorific or expectorant effects, except slightly, through general stimulus, and gives no hint toward emesis. These results come from administering it in large quantities of water, whereas a minute portion of the active principle of ipecac—emetine—given hypodermically, is efficient.

With boneset go all the many species of eupatorium used here and in other countries, the related senecios, elder flowers, linden flowers, and most of the old-fashioned herbs used in the same manner and for the same purpose. Here also probably belongs the *Ilex vomitoria*, or Southern holly, yielding the black drink of the Southern aborigines, concerning which plant a book has recently been written. Other species of *ilex* fall within the same group. This group is represented in the practice of almost all uncivilized classes.

We must conclude from this study that ipecac, even when strictly considered, is not a unique remedy; that while the very great majority of drugs which have been associated with it are not really of the same type, a number of them are and could, in emergency, yield products equally satisfactory; and that one of them at least is already proved to be capable of immediately superseding it with advantage.

## CONSTIPATION,

ESPECIALLY IN ITS RELATIONS TO  
THE DISEASES PECULIAR TO WOMEN.\*

BY ANDREW F. CURRIER, M.D.

THAT so large a portion of the human race is afflicted with constipation is a fact of great interest from which important deductions can be drawn. Assuming, as we fairly may without argument, that the intestinal canal is not intended as a reservoir for the storage of excrementitious matter, ordinary clinical experience informs us that of the great multitude of individuals in whom occur this unnatural storage and the other elements which constitute constipation, the condition is the expression of disease with some, while with others it is an expression of neglect—partly due to ignorance and partly to indolence. This leads naturally to the observation that the far-reaching influence and significance of constipation are not appreciated by a very considerable portion of the community. For this situation the medical profession is largely to blame, for it includes the instructors in hygiene to individuals and to families which make up the community. This arraignment must extend to many of our clinical teachers, and especially to that system of teaching in which diseases are classified and conformed to rigid rules as if pathology were one of the exact sciences. Thus the student goes forth to his practical work with his head crammed with theories and notions to which he vainly endeavors to conform the phenomena which he witnesses. This is no disparagement to the scientific grouping of symptoms, but rather an appeal that induction, and not deduction, is the proper method of considering the morbid states of the body.

In human beings it may fairly be said that constipation is omnipresent. We witness it in the convulsions of the new-born infant with an inactive and overloaded bowel, and in the coma sometimes terminating in death in the aged from the same cause, and in the intervening period it presents phenomena of every degree of intensity and variety. It is the result of habits and occupations, climate and diet; it is caused by conditions of exactly opposite character, by fasting or full eating, by watching or sleeping, by exercise or indolence, in those who are anemic and those who are plethoric, the idle and the industrious, the temperate and the dissipated. I have seen two people who sat at the same table, did the same amount of work, in fact, experienced conditions which were practically identical, and who were in good physical condition when brought to this similarity of experience, develop diarrhoea in the one case and constipation in the other. I am aware that this is a common observation, and it is mentioned simply as an illustration of the infinite variety of causes which result in constipation. It is often said that women are more frequently constipated than men, and that this is to be explained by their indoor and sedentary life; but this is an unsatisfactory explanation, for many men who lead an indoor life are constipated, and many women are constipated whose

lives are not sedentary, but very active. Here, again, we are confronted with the protean character which distinguishes constipation. The reciprocal influence of constipation and pelvic disease in women must be apparent to every one who is brought in contact with the morbid conditions which are grouped under the latter comprehensive term; indeed, it has seemed to me that the structure and functions of the pelvic organs in the female have more to do with the cause and continuance of constipation than any other factor. A study of the histories of one hundred consecutive cases in the records of my private practice showed that in sixty-five there was manifest and annoying constipation. It must be remembered, moreover, that the term constipation, with women more than with men, is a relative one, and that if the statements of all of the one hundred women in question had been based upon the same physiological and psychological standard, more than sixty-five would have admitted the existence of constipation. But if we limit our argument to the statements of these individuals as they were given, these one hundred women may be considered an average representative of women who suffer with pelvic disease, for all of them consulted me with reference to such disease, either complicated or uncomplicated with disease of other parts of the body, and the diagnosis included almost every recognized form of disease or lesion of the pelvic organs.\*

The fact that nearly two thirds of these women were constipated to an annoying extent is a proof, to my mind at least, of the correctness of the statement which was made—of the very great importance of the symptom constipation in its relation to pelvic disease in women.

It may seem presumptuous to offer a definition of constipation, but it is not improper when we take into consideration the fact that there is much latitude of opinion upon this matter, simple even to transparency though it may appear at first thought. We can always progress more favorably and satisfactorily upon any subject when our eyes are fixed upon it from a common standpoint. I shall attempt no refinements of statement, but would consider constipation as simply that condition in which the intestine fails to readily expel the excrementitious matter which it contains at intervals sufficiently frequent and in a mass of suitable consistence to insure the individual against detriment from waste and decomposing material.

This definition takes into consideration the injury that may result from hardened feces, the intoxication which may result from the bacteria of the intestine and their ptomaines, and is in harmony with the fact that the act of defecation is the resultant of mechanical forces generated by the voluntary muscles of the abdomen and the involuntary muscle of the intestine. This act is dependent to a certain degree upon the exercise of the will; but, on the

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\* The sixty-five cases were distributed as follows: Atresia vaginae cum cardiopathia, 1; anaemia, 2; anteflexio uteri, 1; carcinoma uteri, 2; cystitis (from hairpin in bladder), 1; endometritis, 11; gonorrhoea cum cystitis et peritonitide, 1; haemorrhoids, 2; hyperplasia uteri et prolapsus vaginae, 1; myoma uteri, 6; neurasthenia, 1; obesitas et imbutio uteri, 1; parametritis, 2; pyosalpinx, 11; ruptura cerv. et perin., 1; retroflexio aut retroversio uteri, 6; sarcoma uteri, 1; septicemia post abort., 2; sterilitas, 2; syphilis, 1; tumor ovarii, 3; utero-gestatio, 5.



other hand, the will may be sufficiently strong, while the muscles do not co-ordinate with it, defecation taking place in spite of the inhibition of the will. It may take place without the participation of the will, as in sleep, in paralysis of spinal origin, or insufficiency of the sphincter muscles. The will may be active and defecation may be attempted, but prove a failure from weakness of the abdominal muscles, as in women with very fat, relaxed, or pendulous abdomens, or the muscular force of the intestine may be insufficient to propel the fecal mass onward, or a mechanical obstruction outside the intestine may bar the way. Consequently any cause which impairs the activity of the voluntary or involuntary muscles concerned in the act of defecation will tend to produce constipation. Such causes may be removable or unremovable; they may consist in neglect, in disease within the intestine or without the intestine; they may be mechanical, neurotic, or vascular. Some of them are predisposing and others are inevitable. Traumatism and neoplasm may play a conspicuous part. In short, when we reflect upon the many ways in which this nicely adjusted mechanism which controls the act of defecation may get out of order, we begin to understand why it gets out of order so frequently.

#### CAUSES OF CONSTIPATION.

*Neglect.*—Of all the preventable or removable causes from which constipation in women originates, neglect or indolence is the most common. It is most noticeable in girls and young women; it is less noteworthy in mature women, perhaps because they have learned better, perhaps because it has brought on other evils for which they have sought relief; it is least apparent in the aged. The carelessness of young girls, especially schoolgirls, in the matter of evacuating the bowels is proverbial, and the resulting constipation is the foundation of so many physical evils that it would be far better for these individuals and for society if their intellectual culture were curtailed, and the time devoted to physical exercise or to any means of activity whereby the evils in question could be anticipated and prevented.

*Morbid Conditions within the Intestine.*—Under ordinary conditions the inclination to evacuate the bowels is caused by the deposit of fecal matter within the rectum, the mucous membrane being excited or irritated by its presence. Hence there is reason in the statement which is to be found in the text-books on physiology that the rectum is usually empty. But the sensitiveness of the rectal mucous membrane varies greatly in different individuals, and in women it seems to be less acute than in men. In my experience the rectum of women is rarely free from fecal matter except after particular preparation, and the insensitiveness which accompanies it has much to do with the constipated habit. Constipation in both sexes is a common occurrence as the result of disease of the intestine above the pelvis, but certain forms of such disease occur much more frequently in women than in men. Peritonitis may serve as an illustration which is especially common after abdominal operations and with disease of the pelvic viscera. The paralysis of the bowel and retention of excrementitious matter which characterize it are often the prelude to a fatal issue. Pro-

longed retention of fecal matter within the large bowel, even leading to the formation of a large abdominal tumor and complete paralysis of the bowel, is by no means unusual in women. Constipation may also be effectually produced by infiltration of the bowel structure with malignant or syphilitic disease or by polypi in its interior.

*Morbid Conditions within the Rectum, Medical and Surgical.*—The causes which are operative in the production of paralysis of the bowel above the pelvis are similarly operative and to a much greater extent on that portion which is within the pelvis. These causes may be considered with reference to the treatment which is usually employed for their relief—that is, from a medical and a surgical standpoint. In the former are to be included the thickenings and new formations of syphilitic origin, the dilatation and muscular weakness accompanying prolonged inattention to the accumulation of fecal matter, as in certain cerebral and spinal diseases, congestion and engorgement of the venous system of the rectum associated with menstruation, pregnancy, or obstruction in the portal circulation.

From the surgical standpoint causative conditions are to be found in fissures, ulcers, and hemorrhoids, polypi, infiltration of the tissue with malignant or inflammatory disease, dilatation and weakness due to prolapse of the vagina, or rupture of the perinæum, or both.

*Medical Conditions.*—Of those conditions in which medical measures are indicated for their relief, syphilitic disease of the rectum is sometimes eminently amenable to such relief, but a diagnosis of syphilitic stricture of the rectum in women is not always easily made, and the condition may be treated surgically and ineffectually because of such an error. The constipation which is associated with cerebral disease as effect must be distinguished from constipation which is the cause of such disease. I have seen a case within a few months in which a life was nearly lost through want of such discrimination. Probably the case would have been fatal if the accumulation of fecal matter had not been removed. The constipation which accompanies dilatation of the rectum and in which there is functional trouble alone is usually remediable, but the task is a severe one, for the prolonged and systematic use of medicaments by persons who have carelessly allowed a constipated habit to creep upon them is with difficulty enforced. If constipation is due to spinal lesions, it is, of course, irremediable, excepting in the few cases which are susceptible of surgical treatment. When associated with pregnancy it may be as a new condition resulting from vascular engorgement, or pressure due to displacement, or it may be merely the intensification of precedent constipation. Cases of this character are too often examined and treated with insufficient care, especially in view of the important relations subsisting between open bowels and the parturient and puerperal states. The use of cathartics in a thoughtless manner is responsible for the premature termination of pregnancy in any number of cases, and the aid which they render the criminal abortionist is well known.

The periodical occurrence of constipation with the menstrual flow is a result of venous congestion, and is removable by medical means. The same may be true if the rectal

congestion is associated with an obstructed portal circulation. These are all important points but can not now be discussed.

*Surgical Conditions.*—In constipation due to surgical conditions of the rectum the trouble is irremediable in far-advanced malignant disease, especially if it has extended from the uterus. If there is rectal dilatation as an accompaniment of prolapse of the vagina or rupture of the perineum, the indication is clear. The results in such cases are not always satisfactory, especially with very fat women, with those whose muscles are relaxed from many pregnancies, and with the aged, in whom the muscular tissue of the intestine and the genital organs has mostly disappeared. Of the other surgical conditions which have been mentioned in this connection, their removal is usually followed by the removal of the constipation. This statement has been verified many times in the treatment of hemorrhoids, ulcers, fissures, and strictures.

*Morbid Conditions External to the Rectum.*—The disposition of the viscera in the female pelvis is such as to make constipation possible if the normal arrangement is but slightly disturbed. Constipation under such conditions is due primarily to a mechanical obstruction, which, as a rule, will require surgical means of some character for its removal. If left to Nature, the result may be a very trying one, though it is by no means the fact that a cure never results spontaneously. Such cases frequently illustrate the marvelous accommodative powers of Nature under adverse circumstances. The rectum is closely united to the uterus for a portion of its course; consequently, anything which materially disturbs the position or surroundings of the uterus must disturb, to a greater or less degree, the rectum also. This disturbance, if serious enough, must also cause disturbance of function, and thus we can rationally explain many of the cases of constipation which attend uterine disorders.

There are at least two ways in which a mechanical obstruction external to the rectum may act upon it—(1) as a mass pressing upon a certain portion of it and retarding its contractions or making them irregular, or (2) as an imbedding mass in which the rectum is more or less firmly fixed and more or less paralyzed. The longer the rectum is subjected to either of these forms of obstruction the more persistent will be the resulting constipation; not only is the muscular coat of the rectum paralyzed, but there is paralysis of sensation in the mucous membrane as well. The accumulation of fecal matter goes on unheeded for considerable periods, and when a sufficient stimulus does occur, which leads to the emptying of the bowel, it is accompanied with much pain and straining and often with loss of blood. As examples of obstructive conditions of the first kind may be mentioned posterior displacements of the uterus, whether the latter be impregnated or unimpregnated, and tumors of the uterus or its appendages. As long as these masses are movable, their obstructive effect may not be of serious importance. A retroflexed uterus, whether gravid or not, may be replaced, and the rectal trouble which it was causing may disappear. But if adhesion takes place between the rectum and the overlying mass,

an event which usually occurs if the apposition continues sufficiently long, the function of the rectum will be materially disturbed, the condition then merging into that of the second class, in which the rectum is more or less imbedded or surrounded by a mass from which it can not free itself, and in which muscular contraction is restrained or prevented. This condition is often caused by pelvic inflammations with effusions of pus, blood, or serum, and by the effusions of malignant and tubercular disease. Even though the fluid elements of these deposits be absorbed, bands and bridges of adhesion material will remain, and as these contract the rectum is the more tightly bound in their embrace, which, of course, does not tend to the relief of its disturbed function.

*Consequences of Constipation, Near and Remote, in the Conditions mentioned.*—Constipation may therefore exist as cause and as result; it may be due entirely to neglect or to conditions over which the individual has absolutely no control. In either case it is interesting to note its consequences, and this may be done by considering the subject in three groups, the first of which shall include those individuals in whom constipation results from inattention, neglect, or any other cause outside the pelvis. In this group the complaint arising from the constipation is principally *inconvenience*. The second group will include those in whom there has been neglect and also more or less pelvic disease, but with whom the predominant symptom relates to the retained excrementitious matter. In other words, the predominant symptom in this group is *sepsis*.

The third group includes those in whom pelvic disease is so pronounced that constipation would be inevitable whether there had been neglect or not. In this group the predominant symptom is *pain*. In the mild cases, which are included in the first group, little harm is caused aside from the inconvenience, especially with women who are not very sensitively organized. They may be able to attend to their ordinary occupations without much interruption. Defecation may be painful, the straining and loss of blood may be troublesome, and there will certainly be an absence of that sense of relief which a normal movement of the bowels always gives. The feces are extruded in hard lumps, their fluid elements having been absorbed during their retention in the bowel. There may be fermentation and decomposition, with the expulsion of foul-smelling gases, but there is very little evidence of septic absorption, and there may be all the outward appearances of good health.

In the second group of cases, in which the fecal matter accumulates in the rectum, distending it, and also in the folds of the large bowel, a thorough evacuation is impossible. The pelvic disease in these cases may have preceded the constipation or may have followed as the result of the vascular disturbance which has been developed; or coincidentally with the constipation there may have existed a displacement of the uterus, inflammatory disease of the appendages, relaxation of the vagina and perineum, or lesions resulting from parturition or the puerperium. The constitutional symptoms in these cases are marked, and I do not refer to the symptoms which are characteristic of the severer forms of pelvic disease, but to those which proceed

principally from the constipation. There is a marked want of animation in the performance of duties, drowsiness, headache, backache, a muddy complexion, a furred tongue, cold extremities, and loss of appetite. Such cases are frequently treated for malaria. Tympanites is troublesome, for decomposition and septic absorption are constantly present. The influence of the bacteria of the large intestine, the development and distribution of ptomaines, the sapremia, the development of diarrhoea with vile-smelling passages, are all characteristic of this group. There may also be a clouded mental condition, with gloom and melancholy. This form of constipation obtains with many insane women, both within and without the hospitals. It is in this group that we meet with fecal tumors, and with these also there may be disturbance of the portal circulation and of the functional activity of the liver. In short, the characteristic *sepsis* is plainly apparent in the cases which are included in this group.

In the third group the cause of the constipation is located essentially in the pelvis, and whatever the previous condition may have been it would seem that constipation was now inevitable. The rectum may be occluded by stricture or polypus, infiltrated with inflammatory or neoplastic elements, or impinged upon and surrounded by effusions or dislocated viscera, and its muscular contractions are either greatly restrained or entirely prevented. Venous congestion is a necessary and continuous consequence of the foregoing conditions. Fecal matter accumulates in the rectum and colon, but it is not impacted, as in the cases in the second group, nor is there stercoral intoxication, as in those. This may be due to the fact that the women of this group are constant sufferers—in fact, pain is the predominating symptom—and hence require constant professional care. The relief, more or less, to the constipation is incidental, and it is possible that the drugs which are constantly taken prevent the septic phenomena which are so common with women of the second group. The effect of the pain in these cases is the effect of pain everywhere—a general lowering of the vitality and loss of flesh and strength. Unless they are relieved by surgical measures they become bedridden and easy victims to intercurrent disease. In addition to the acute pain in the rectum, which is especially acute with every effort at defecation, there is the pain of the monthly period, backache, tympanites, indigestion, and many other ills, which, taken together, make the burden of life for them a heavy one.

#### TREATMENT.

The recommendation of methods of treatment, whether medical or surgical, is to my mind one of the most unsatisfactory features of the work of a teacher or writer. It is so easy for opinions to differ with regard to a given condition, that at the very outset a writer is confronted with a disadvantage in the fact that his meaning may be misapprehended or his directions misapplied even where there is the utmost candor and good intention in carrying them out. In any case, if the results are not those which were promised and anticipated, there is disappointment and also loss of confidence in the ability and integrity of the writer.

Therapeutics, therefore, should deal with principles rather than with rules and formulæ, though I can not deny that the latter are sometimes very convenient. If the principle is firmly grasped the application will usually follow.

The treatment of constipation, associated as this condition is with a great variety of morbid states, offers a wide latitude for the application of therapeutic principles. It must include both medical and surgical measures, and it is unnecessary to say that it is useless to attempt to cure the constipation without removing its cause. The following measures would certainly be indicated in more or fewer cases: (1) cutting operations, (2) electricity, (3) massage, (4) cathartics and aperients, (5) injections and applications in vagina and rectum, (6) tonics.

*Cutting Operations.*—It is becoming more and more recognized that certain diseased conditions of the pelvis which long occupied debatable ground are not amenable to medical treatment, but to surgical only, or to surgical and medical combined. This has involved a period of education in which many mistakes have been made by those who believed and those who did not believe in radical surgical measures for this portion of the body. But without wandering too far into this bypath, the concrete application of the proposition is that when constipation is associated with a rectum which is firmly bound by adhesions or imbedded in exudate, the chances of relief are not one in a thousand, unless the offending and obstructing matter is removed by a surgical operation. When the rectum and vagina are dilated, the perinæum torn, and the conditions which favor muscular contraction wanting, the constipation will probably go unrelieved until a surgical operation has been performed. Pressure of a displaced uterus upon the rectum may often be relieved by mechanical appliances, but if these fail more radical measures will be indicated in order to allow the rectum to perform its work. The cutting operation may not be all that is necessary to cure the constipation in these cases, but it will often be found an indispensable factor in the treatment.

*Electricity.*—In cases in which there is no serious lesion in the pelvis or elsewhere which causes the constipation, the condition being only functional, and, in particular, due to muscular inactivity, the use of electricity will be rational and effective. A mild faradaic current producing contractions of successive portions of the intestine, or a mild galvanic current with the negative electrode in the rectum and the positive upon the abdomen, repeated at sufficiently frequent intervals, has been found very useful in many recorded cases.

*Massage.*—For the same class of cases as the preceding, and also in the relaxed cases, the cases in which both the involuntary and the voluntary muscles concerned in the act of defecation are involved, the judicious use of massage is of great benefit. A skillful rubber is one of the most valuable assistants which a physician can have in cases of this character.

*Cathartics and Aperients.*—The field occupied by cathartics and aperients is a large one, and I can not pretend to do justice to the subject in the brief allusion which will be made to it. The use of the aperient mineral waters, of



which so many really valuable ones are now available, will be found very efficient in many of the cases in which the trouble is purely functional, and in others in which they will be required both before and after the performance of surgical operations. A long course of such treatment systematically and patiently carried out will often relieve the most obstinate cases. The list of approved remedies in addition to the mineral waters for persistent and careful use is a long one—too long to be detailed here. One need only mention the preparations in which cascara, aloin, podophyllin, calomel, and senna are the active ingredients. For surgical cases nothing can surpass the usefulness of the salines, which are now so extensively used both before and after operations. Their function in depleting the circulation and relieving congestion has undoubtedly saved many lives which would have succumbed to peritonitis or sepsis after the performance of severe abdominal operations.

#### *Injections and Applications in the Vagina and Rectum.*—

The use of glycerin and salines in the vagina and rectum, injections of ox gall, and the oils has played a most useful part both in surgical and medical cases. As they are all free from poisonous properties, they should be used fearlessly and in large quantities. They are frequently effective when life seems to hang by a thread, and their value in these desperate cases is not yet fully appreciated by the profession at large.

*Tonics.*—There are few cases in which constipation has persisted for any length of time in which tonics with other measures are not proper. Quinine, malt, iron, arsenic, strychnine—all have their appropriate place in this connection. Constipation is certainly debilitating; it may require this form of treatment or it may require that, and in all cases it should be our aim, to borrow a comparison from comic opera, "to make the punishment fit the crime."

55 MADISON AVENUE.

## RESECTION OF THE SMALL INTESTINE FOR RUPTURE CAUSED BY TAPEWORM.

RECOVERY.

By FAYETTE DUNLAP, M.D.,  
DANVILLE, KY.

On the morning of September 12th Mrs. L., aged thirty-one, was attacked by violent pains in the left iliac region. The onset was without premonition and prostration rapidly followed. When first called there were no symptoms of shock, and, supposing the pain due to the re-establishment of menstruation after eighteen months' lactation, I gave morphine hypodermically. About three hours thereafter, the pains recurring, I repeated the morphine. In another hour a messenger announced that the patient was again in distress, and at this visit the signs of shock and hemorrhage were unmistakable and my suspicion that there was an ectopic gestation with ruptured sac seemed now confirmed.

Eighteen months prior to this she had borne a child, and twelve months thereafter menstruation appeared but once. From May to September she did not menstruate, but gave no signs of pregnancy. There was a boggy mass to be felt now by bimanual examination, and this, with frequent syncopic attacks, satisfied me that hemorrhage was going on in the abdomen. I sent at once for assistance and a nurse and began an exploratory celiotomy, expecting to find a ruptured tubal pregnancy. The

pelvis was filled with recent blood-clot and the uterus, ovaries, and tubes were perfectly normal.

I searched for an aneurysm and none was found. In flooding the cavity to free it of clots there floated to the surface a long tapeworm. Following this lead it was found protruding from a large ragged rupture in the small intestine. There were two bleeding points and these were secured and the attempt to dislodge the worm entire was unsuccessful. It had fastened about twelve inches above the rupture. About two thirds of the lumen of the intestine was gone, and possibly the length of the opening was an inch and a half. The edges were ragged and gangrenous, but it was quite evident that there had been no previous ulceration.

It was impossible, from the great loss of tissue, to unite the edges without so narrowing the gut as to produce constriction, so a resection of the damaged parts was done and the ends were united by the continuous suture after the manner of Lembert. Owing to the extreme prostration the operation was completed in a remarkably short time—less than thirty minutes—and the patient put to bed pulseless. Vomiting was continuous for thirty hours and only ceased after a large enema of an ounce each of glycerin and sulphate of magnesium and a quart of hot water. From this time forth the recovery was prompt and satisfactory. From the abdomen there was removed about eight feet of live tapeworm, and with the enema there came away seventeen feet more. There were no antiseptics used; only boiled cistern water. The surroundings were as unfavorable as could be imagined for abdominal section, but there was no evidence of sepsis in the progress of the case.

The interesting feature of this case is the cause of the intestinal rupture, the ragged gangrenous margins of the wound inclining me to the idea of pressure gangrene. The worm had evidently become entangled and, in the effort to free itself, so eroded the wall as to cause the rupture. Collections of lumbricoids are frequently the means of intestinal obstruction in children, but in the whole range of my reading or observation this is the first instance of escape of an intestinal parasite into the peritoneal cavity. Lumbricoids have been found in a ruptured appendix, but it was not safe to say that they were the cause of the rupture.

This indeed is another marked illustration of the uncertainty that is always before the abdominal surgeon as to the nature of what he may find in the cavity. It was my belief and that of Dr. James W. Guest, Dr. Montfort, and Dr. Kincaid that a ruptured tubal-gestation sac was producing the symptoms, and how far wrong we were, but how strikingly similar were these symptoms, the foregoing recital testifies. At this writing the patient is in perfect health and is allowed to partake of whatsoever character of food her taste calls for.

The Death of Dr. Spencer Core Devan, Passed Assistant Surgeon in the United States Marine-Hospital Service, occurred at Philadelphia on Friday, the 3d inst. Dr. Devan was born in New York city in 1856, and entered the Marine-Hospital Service from Missouri in October, 1881. He was on duty at San Francisco, served as medical officer of the steamship Corwin during her cruises in the Arctic Ocean in 1882 and 1883, was on duty at Portland (Oregon), St. Louis, Port Townsend, Washington, Buffalo, Portland (Maine), and Norfolk. While on duty at the latter station he had an attack of pneumonia, and on recovering his health was ordered to command the quarantine station at Delaware Breakwater. But his health broke down in consequence of the arduous duties, he was obliged to go on sick leave, and his death occurred while he was on leave.

THE

## NEW YORK MEDICAL JOURNAL,

*A Weekly Review of Medicine.*Published by  
D. APPLETON & CO.Edited by  
FRANK P. FOSTER, M.D.

NEW YORK, SATURDAY, FEBRUARY 11, 1893.

## CHOLERA AND THE PILGRIMAGES TO MECCA.

In an exhaustive pamphlet on the cholera in Egypt, just published by Dr. F. M. Sandwith, of Cairo, there is an interesting account of the sanitary conditions of Mecca and its pilgrims. Mecca has 110,000 inhabitants. The holy season is early in midsummer, and the number of pilgrims then entering the city varies from 80,000 to 100,000. The town is so crowded that \$15 to \$20 must be paid for a night's lodging, and thirty people crowd into a small room in order to divide the expense. The houses have cesspools which are seldom or never emptied, and the latrines are too foul to be used. The drinking supply comes from the Ain Zebaida and runs into an open reservoir about three hundred feet in diameter. This reservoir is never cleaned out. It is so contaminated by neighboring cesspools that the water stinks. It is unprotected, so that people throw in whatever they wish. Mecca stands in a winding valley shut in by rocky hills that fiercely reflect the August heat. Mina is a village three miles from Mecca, and Arafat a mountain twelve miles away. The pilgrims before the sacred rites run seven times between the hills of Mecca, and throng during the day the Kaaba with its horrible air. On the first holy day they go through Mina to Mount Arafat, where they remain all night, with prayers for three hours before daybreak. Then, almost naked, exhausted with fatigue, fasting, and emotion, the pilgrims crowd toward Mina in a confusion and chaos that lasts most of the second night. The third day is ushered in by prayers at dawn, and then some rush headlong toward Mecca, while others gather in a seething mass in a narrow pass to stone the Devil's Pillars. Then some six thousand sheep and cattle are sacrificed in the village of Mina, no provision of any kind existing for sanitary slaughtering. The air becomes pestilential and prevents sleep at night. Every one suffers from the heat, stench, blood-soaked earth, vermin, kites, and vultures. The water at Mina comes from the Mecca fountain and is kept in large cisterns never cleaned and full of entozoa. Many pilgrims fly at once to Mecca to escape the horrors of Mina, but numbers are detained by religious scruples or other reasons for three days. This state of affairs is quite enough to produce any pest, and the mortality from diarrhoea alone is very great among the pilgrims. Immediately after Holy Week the faithful are enjoined by their religion to disperse from Mecca, carrying with them the germs of diseases as well as any number of internal and external animal parasites. Besides this, those who can afford to do so bring back for their friends and for home consumption bottles of the precious Zem Zem water, which acts as a purge and tastes and smells horribly. An analysis of this holy water

made in London some years ago showed that it was dangerously contaminated with sewage.

The Mecca pilgrimages are a source of great peril to many Eastern countries as regards cholera. Most of the Egyptian epidemics have had their origin there, although a quarantine has been enforced against returning pilgrims. In 1890 Mecca's cholera mortality while the pilgrims were carrying on their devotions to Mohammed was four hundred to five hundred daily. In 1891 the cholera mortality in the holy city during the performance of the sacred ceremonies by the pilgrims reached four hundred a day. During the last thirty-two years cholera has infested Arabia sixteen times. Egypt has suffered only three times in the same period, probably because the pilgrimage is so long that the disease dies out before the pilgrims return. From a study of these facts and all the points in relation to India, it would seem that there is no tendency among the picturesquely filthy Orientals to sanitary reform of any kind, and it becomes the duty of Western governments regnant there to protect the civilized world from these barbaric Oriental nests of pestilence.

## MINOR PARAGRAPHS.

## THE MEDICAL CORPS OF THE NATIONAL GUARD.

The adjutant-general of the National Guard of the State of New York, in his annual report for 1892, says that he concurs in the statement and recommendation made by Surgeon-General Joseph D. Bryant that the organization of the medical department of the National Guard should be made in a more permanent manner, and modeled after the organization of the medical corps of the United States army. It may surprise many of our readers to know that the commission of a medical officer is virtually held during the pleasure of the commanding officer of his regiment for the time being. In other words, if a new commanding officer is elected, the medical officers, as part of his official staff, are expected to tender their resignations. They are not, however, usually accepted. This arrangement subordinates the medical corps to an unwarranted degree, and seems to us to be most prejudicial to the best interests of the service. The medical officers of a regiment should be as independent in the tenure of their commissions, and of the line in general, as the medical officers of the army, and it is to be hoped that Dr. Bryant's recommendation will be acted on. The evil that we have referred to does not exist in New York alone, but in many other States as well; and it is a part of the absurd system of appointment by official favor in the creation of a staff of carpet officers by each new Governor. The incompetency that is secured by this method was satisfactorily demonstrated by certain of the staff corps in the trouble at Buffalo last summer. The Association of Medical Officers of the National Guard should take this matter in hand and secure proper laws regarding the medical corps of the guard of each State.

## INFANTICIDE BY MEANS OF SPONGE

PROFESSOR PAUL CAZENEUVE reports in *Lyon médical* for December 4, 1892, a case in which a healthy infant of five months died very suddenly. Seven months afterward, on account of popular suspicion, an examination was made of the putrid and anatomically unrecognizable masses constituting the head and the abdomen. In making an examination for arsenic, M. Cazenueve noticed four rounded bodies, of the size of beans,

that were elastic, and on further examination these proved to be pieces of sponge. On further search, three more pieces of sponge were found. Chemical tests failed to reveal the presence of any metallic poison in the remains, and no examination was made for alkaloidal poisons, on account of the putridity of the tissues. Professor Cazeneuve considered that the sponge had been administered to cause death, for in certain localities dogs and cats are killed by giving them sponge fried in oil. The sponge swells in the intestinal fluids, resists their action, and produces intestinal obstruction with vomiting and convulsions. It did not seem that the pieces of sponge had been swallowed by accident, as they were too numerous, and there is no domestic use for such small bits of sponge; they were probably administered in soup or milk with criminal intent. The author states that a method of infanticide in England is to stuff the pharynx of the new-born child with sponge held by a thread that permits of the removal of that substance after suffocation is produced. But he believes his case is unique in jurisprudence. The person accused of giving the sponge was found guilty and sentenced to hard labor for life.

#### THE BELLEVUE HOSPITAL ALUMNI SOCIETY.

THE Society of the Alumni of Bellevue Hospital held its third reunion at the Hotel Brunswick on Wednesday evening, the 1st inst. About a hundred and twenty-five persons, including the invited guests, sat down to dinner. The tables were beautifully decorated with choice cut flowers and the menu cards were very artistic. The opening address was made by the president, Dr. W. R. Townsend, who acted as toastmaster, and responses were made to the following toasts: The Commissioners, by the Hon. W. W. Porter; Old Bellevue, by General James G. Wilson; The Medical Board, by Dr. Joseph D. Bryant; The Alumni, by Dr. Charles McBurney; Medical and Other Kinds of Doctors, by Frederick Taylor, Esq.; Our Sister Societies, by Dr. W. L. Carr; The Patient, by Charles C. Beaman, Esq. The society was organized in 1887, and now has a membership of more than a hundred and fifty, two thirds of whom are residents of New York city. Within a few weeks the society will publish a catalogue containing the names and addresses of all of the ex-internes of Bellevue Hospital and a complete history of the institution since its organization. The book will be profusely illustrated with views of the hospital pavilion and wards, and with portraits of many noted physicians and surgeons.

#### A SECOND DANIEL.

ONE Dr. Steinbrecher, who is said to have "a brother-in-law in Europe," is represented as ultra-pessimistic about the New York quarantine. The *Detroit Tribune* reports him as saying: "Tammany is opposed to the prohibition of immigration because it will throw a lot of inspectors who are Tammany appointees out of a job at New York. Health Officer Jenkins, of New York city, is himself a Tammany appointee. He is a young physician, only a couple of years out of college, and owes his appointment to the fact that he is a brother-in-law of Croker, the sanitary chief." Thus does Dr. Steinbrecher, if the *Tribune* is to be believed, betray equal ignorance of New York sanitation and of New York politics.

#### THE NEW YORK STATE SOCIETY.

AT the meeting of the Medical Society of the State of New York held this week the general indorsement of the recommendations contained in the president's inaugural address was followed by specific action by which the society's code of ethics

was extinguished. This, of course, freed the society from any obligation to delegate a committee of conference to meet the American Medical Association's special committee appointed to consider ways and means of re-establishing relations between the two organizations. The situation seems therefore to be somewhat improved; the State society has no code of ethics, and consequently is less at variance with the American Medical Association than when it had a code that positively clashed with the association's code. It remains to be seen, however, whether other relations between the two bodies than those of "comity" will again come into existence.

#### THE YELLOW ABOVE THE BLACK.

IN *A Question of Diplomacy*, a short story by Dr. Conan Doyle, the Prime Minister and another minister of Great Britain have a conference in the sick-room of the latter, who is laid up with the gout. Says the sick man: "My head is clouded; sometimes I think it is the gout, and sometimes I put it down to the colchicum." "What will Sir William say to that?" (Sir William is the physician in the case). "You are so irreverent. With a bishop you may feel at your ease—bishops are not beyond the reach of argument. But a doctor, with his stethoscope and thermometer, is a thing apart. Your reading does not impinge upon him. He is serenely above you. And then, of course, he takes you at a disadvantage. With health and strength one might cope with him." The time for argument has passed when the doctor is in the house—then is the time for obedience, if not contrition.

#### TUBERCULOUS MILK IN SAN FRANCISCO.

THE newspapers state that a certain morning paper of San Francisco, having been informed by a well-known physician and ex-member of the board of health of that city that a large part of the milk supplied to consumers there was taken from tuberculous cows, caused samples of milk to be bought in six places. These samples were submitted to an expert chemist and bacteriologist, who found tubercle bacilli in two of the samples. The physician that suggested the experiment stated that during his official career he had found that more than fifty per cent. of the milk supplied to the city and county hospital contained the tubercle bacillus.

#### THE LONDON POST-GRADUATE COURSE.

THE prospectus of this school for the spring of 1893 shows that Sir Joseph Lister has been added to the teaching corps. His subject is antiseptic dressings. Sir George Johnson and Dr. Bristowe are also among the latest acquisitions. The composition fee for the whole course is about eighty dollars. There are fully a hundred and twenty demonstrations and lectures on the schedule, at twelve different hospitals or museums.

#### THE SHEFFIELD MEDICAL JOURNAL.

THIS is the title of a new quarterly journal published in Sheffield, England, and edited by Mr. Simeon Snell. The second number, for January, 1893, contains 96 pages of reading matter, and is illustrated with a number of excellent engravings.

#### ITEMS, ETC.

AN Army Medical Board will be in session in New York city during April, 1893, for the examination of candidates for appointment to the medical corps of the United States army, to fill existing vacancies. Per-



sions desiring to present themselves for examination by the board will make application to the secretary of war, before March 15, 1893, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the board. Further information regarding the examinations may be obtained by addressing the surgeon-general, U. S. army, Washington, D. C.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 7, 1893:

DISEASES.	Week ending Jan. 31.		Week ending Feb. 7.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	54	4	28	21
Typhoid fever.....	12	2	8	3
Scarlet fever.....	164	12	198	17
Cerebro-spinal meningitis.....	19	5	5	1
Measles.....	71	8	86	6
Diphtheria.....	120	39	121	43
Small-pox.....	4	1	3	1

**The Society of Medical Jurisprudence.**—At the next meeting, on Monday evening, the 13th inst., Mr. S. B. Livingston, of the New York bar, is to read a paper on Suicide and Recent Reactionary Legislation.

**The Index Catalogue.**—Two weeks ago we spoke with regret of the omission of the usual appropriation for continuing the publication of this great work. We are glad to learn that the omitted item has been restored, and that it is probable that there will be no further obstacle to the necessary legislation.

#### Society Meetings for the Coming Week:

**MONDAY, February 13th:** New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private—anniversary); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Society of Medical Jurisprudence, New York; Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

**TUESDAY, February 14th:** New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Delaware (semi-annual) and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynecological and Obstetrical Society; Northwestern Medical Society of Philadelphia.

**WEDNESDAY, February 15th:** New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; Harlem Medical Association of the City of New York; New Jersey Academy of Medicine (Newark).

**THURSDAY, February 16th:** New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

**FRIDAY, February 17th:** New York Academy of Medicine (Section in Orthopedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

**SATURDAY, February 18th:** Clinical Society of the New York Post-graduate Medical School and Hospital.

#### Answers to Correspondents:

No. 394.—The operator was Dr. Robert F. Weir.

No. 395.—The micro-organism does not thrive in a solution of the substance mentioned, but a solution strong enough to kill it would not be tolerated by the tissues of the body.

## Proceedings of Societies.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*Eighty-seventh Annual Meeting, held in Albany on Tuesday, Wednesday, and Thursday, February 7, 8, and 9, 1893.*

The President, Dr. LEWIS S. PILCHER, of Brooklyn, in the Chair.

**The President's Inaugural Address** having been delivered (see page 149), the recommendations contained in it were, on motion, unanimously approved.

**A Contribution to the Study of the Treatment of Trachoma and Vascular Keratitis by means of Jequirity, with Cases,** was the title of a paper read by Dr. J. B. EMERSON, of New York. This drug had not accomplished what enthusiasts had hoped for it, but had certainly been beneficial in cases in which there was superficial vascularity of the cornea from trachoma or in the fibrous conditions which followed it. It was desirable that patients remain in hospital while this treatment was being carried out, and the powdered leaves should be used in preference to the tincture. The longer the disease had lasted the less severe was the reaction from the treatment. The inflammation which resulted from the application of the drug was at its height at the end of the third day. Pain was to be relieved by the use of atropine and ice-cold cloths. The membrane which formed as the result of the inflammation usually came away on the fifth day. The drug was certainly a valuable one and could be depended upon to give benefit in suitable cases.

**A Discussion on Epilepsy.**—The Epileptic Interval; its Phenomena and their Importance as a Guide to Treatment, was the title of a paper by Dr. WILLIAM BROWNING, of Brooklyn. Differences in the pupils of the eyes in epilepsy were not common, but occasional; oscillation of the pupils was of very common occurrence, both contraction and dilatation being noticeable. In many cases it was observed that it was impossible to keep the gaze fixed. Oscillation was less marked on dull or cloudy days. In patients who were physically degenerate there was thickening of the iris, the condition being bilateral. Other ocular defects or deficiencies were to be regarded as results rather than as symptoms of the disease. Peculiarities of the pulse were very frequent, including variations in rhythm, change in the rapidity of the beats, and great irregularity which might come on suddenly. The childish heart with palpitation was especially noteworthy in adult women. The question was pertinent whether these irregularities were due to heart strain or to faults of innervation. Cardio-vascular troubles might be secondary, but were always of importance.

Respiratory troubles were often marked, patients becoming fatigued after slight exertion.

The appetite of epileptics was usually large, but there were occasionally cases in which it was deficient.

Digestive disorders frequently occurred, and often arose from imperfect mastication and hasty eating.

Amenorrhœa and menstrual irregularities were common. In some cases epileptic convulsions were absent during the menstrual epoch, in others they were increased at that time.

Cold hands and feet were a common symptom, and were

usually attributable to excessive sweating. Pruritus universalis and other skin affections were of common occurrence.

Wakefulness was a common symptom, quiet, dreamless sleep being rare. Restlessness during sleep was common, also the habit of holding the head very high or very low while sleeping; this would affect the circulation of the brain in some cases. Cervical adenopathies were common, also ear troubles and nasopharyngeal difficulties. The relation of epilepsy to chorea was seen in the general uneasiness of patients, also paresis as a residuum of convulsions. Headaches and impairment of the tendon reflexes were also noteworthy.

(To be continued.)

## Book Notices.

**Mineral Springs and Health Resorts of California**, with a Complete Chemical Analysis of Every Important Mineral Water in the World. Illustrated. A Prize Essay. Annual Prize of the Medical Society of the State of California, awarded April 20, 1889. By WINSLOW ANDERSON, M. D., M. R. C. P. Lond., M. R. C. S. Eng., etc., Joint Editor and Publisher of the *Pacific Medical Journal*, etc. San Francisco: The Bancroft Company, 1892. Pp. xxx-384.

This is not a mere collection of analyses of mineral waters, geographical and topographical data, and therapeutical allegations. It appears to us to be discriminative and conservative in its statements, and to have been founded largely on the author's personal observation. It covers more ground than the title-page sets forth, for nearly a hundred of the earlier pages are devoted to mineral springs and to balneology in general. The author's style of writing is pleasing, and what he says can readily be understood by persons who have no special knowledge of medicine. We can not speak highly of the pictures, which are numerous; many of them have no particular bearing upon the text, being mere scenes, and almost all of them are badly executed. They are quite unworthy of the book, and had better have been omitted.

**Notes on the Newer Remedies**, their Therapeutic Applications and Modes of Administration. By DAVID CERNA, M. D., Ph. D., Demonstrator of Physiology in the Medical Department of the University of Texas, Galveston. Philadelphia: W. B. Saunders, 1893. Pp. viii-17 to 177. [Price, \$1.25.]

This little book is interesting and valuable to those who wish to familiarize themselves with the newer and, in the main, little-employed products of the therapeutical laboratory. The essential points are clearly and succinctly stated. Thus we are informed that orthine is a body derived from phenylhydrazine, its chemical name being orthohydrazinparaoxybenzoic acid.

**Physical Properties.**—The drug in a free state is unstable, but the hydrochlorate is a good and stable preparation.

**Solubility.**—Orthine is soluble in water.

**Therapeutic Applications.**—The remedy has been found to be a very decided antipyretic, and as such it has been employed with success in typhoid fever, acute articular rheumatism, pneumonia, and other febrile disorders.

**Administration.**—Orthine is given in doses of from five to eight grains (0.30 to 0.50 gramme).

The list of remedies, however, is not restricted to the most recent productions, for we note articles upon amyl nitrite, apiol, bromoform, carbon disulphide, chrysarobin, salol, and quinine, as well as many other drugs that are more or less familiar to medical men. There is a very complete index.

**Materia Medica, Pharmacy, Pharmacology, and Therapeutics.**

By W. HALE WHITE, M. D., F. R. C. P., Physician to and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, London. Edited by REYNOLD W. WILCOX, M. A., M. D., LL. D., Professor of Clinical Medicine at the New York Post-graduate Medical School and Hospital, etc. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. 8-9 to 607. [Price, \$8.]

THERE can be no just ground for a complaint of any dearth of works on materia medica and therapeutics, for no sooner does one pass from our table than another is at hand to take its place.

This last aspirant for professional favor gives no *raison d'être*, and it seems to us it has been unfortunate in following the materia medica of the British Pharmacopœia and of the United States Dispensatory that has rendered necessary more or less notice of many useless articles.

The therapeutic action of acetonite, aloin, and caffeine citrate is not specified in the sections on these preparations, and the text does not state that this may be learned elsewhere in the volume. The section on caffeine states that it is not so useful in treating migraine as antipyrine or exalgine, though in the sections on these latter drugs no mention is made of their utility in treating that disease. No mention is made of the usefulness of acetanilide or antipyrine in epilepsy, chorea, and dysmenorrhœa.

By oversight, it is stated that boric acid is not employed internally in medicine; and an error has also been made in the statement that ouabain is isolated from strophanthus.

The scope of the employment of a medicament is sometimes meagerly stated, as in the case of nitroglycerin, of saccharin, and of hydrogen peroxide. No therapeutic use of sulphocarbolate of zinc is mentioned.

While the custom of certain clinicians is followed in recommending the administration of the lithium salts in the treatment of gout, the fact, to which Sir William Roberts and others have called attention, is overlooked, that, while these salts have a high solvent power on free uric acid, there is but slight evidence that they tend to prevent the formation of uratic deposits.

The book is compact, though its usefulness would be extended if useless articles in the materia medica had been omitted and the space saved devoted to the action of drugs. The pharmacology is quite meager.

**The Modern Antipyretics**; their Action in Health and Disease.

By ISAAC OTT, M. D., Easton, Pa. Second Edition, revised and enlarged. Easton: E. D. Vogel, 1892. Pp. 5 to 124.

This little work is one of the most useful that can fall into the hands of the student of therapeutics, for nowhere else can he find collected together so much information regarding the physiology and pathology of heat production and the influence that antipyretics exercise upon it.

The author explains the method of heat production and the manner of determining the quantity of heat by calorimetry.

He considers that the most recent experimental and clinical observations indicate that the thermotaxic centers are located as follows:

Fore-brain.	{	Cortex, thermo-inhibitory centers: (1) cruciate,
		(2) Sylvian.
		Base, thermogenic centers: (1) caudate nucleus,
		(2) gray matter of septum lucidum (white),
		(3) gray matter in front of and beneath the caudate nucleus.

Inter-brain. Thermogenic center in the tuber cinereum. Polypnoic and vaso-tonic centers in the tuber cinereum, connected with thermolysis.]  
 After-brain. Thermolytic centers, respiratory and vaso-motor.  
 Spinal cord. Thermolytic, sudorific, and thermogenic centers.

He has found that puncture, like fever-poison, excites the thermotaxic centers, and that antipyretics reduce their excitability. Experiments made with the injection of either albumose or peptone in a curarized animal show that there is not, as a rule, the peptone or albumose fever that usually follows inoculation of a healthy animal with these substances.

Dr. Ott believes that fever is either an autochthonous or heterochthonous process, the basal thermotaxic centers playing the most important part in the temperature phenomena. He further believes that the fact that antipyretics have but little action upon man in health, but a decided one in fever, is a strong argument for their action upon nerve centers that are known to be disordered by the poison of fever.

The action of the different antipyretics is described, often from personal experiments in their employment, and that section completes this very useful brochure.

*Fermentation, Infection, and Immunity, a New Theory of these Processes.* By J. W. McLAUGHLIN, M. D. Austin, Texas: Eugene von Boeckmann, 1892.

THE author's purpose is to demonstrate that the intimate cause of fermentation rests in molecular physics. He believes that ferments are organic substances, having an atomic and molecular structure that gives them power to drive apart the molecules of other organic (fermentable) substances when these are brought into solution or placed in other suitable conditions. The differences in physical, chemical, and physiological properties of the products of fermentation are caused by differences in the molecular structure of the ferments on the one side and of the fermentable substance on the other; in other words, there is a definite relationship existing between the ferment, the fermentable substance, and the products of every fermentation that is caused by the molecular structure of the substances named. Analogous to the wave motion of water, light, and sound, the author believes is the wave motion (vibration) of the constituent molecules of ferments, of which the specific action is accounted for by specific vibrations. He considers that immunity is the consequence of a change in the molecular grouping of an albuminoid molecule that produces a corresponding change in its wave motions, with the result that it is no longer vulnerable to the molecular attack of the bacterium.

There is an extensive review of the literature of fermentation, infection, and immunity. We can not say that we are prepared to accept the author's deductions, based as they are on analogy, especially as the complexity of many organic products has still eluded analysis by any method known to science.

*Mother and Child.* Part I—Mother. By EDWARD P. DAVIS, A. M., M. D. Part II—Child. By JOHN M. KEATING, M. D., LL. D. Philadelphia: J. B. Lippincott Company, 1893. Pp. vi-9 to 472. [Price, \$2.50.]

The authors state in the preface that they have endeavored to make this manual both instructive and readable, not wishing to supplant the physician, but to supplement the advice that he may give and render it intelligible.

In the chapter on girlhood Dr. Davis urges exercise in discretion, condemns tea, coffee, and other stimulants, and recommends plenty of sleep and daily bathing. From this he passes to the consideration of puberty, womanhood, conception, and pregnancy. The advice given on the hygiene of pregnancy is

well considered and judicious; the preparation of appliances for the mother and for the child is described; and there is a short description of the mechanism of labor and of puerperal fever.

In the second part of the volume Dr. Keating describes the care of the new-born infant, its nursing; and in the chapter on sterilizing and sterilizers, while referring to the condemnation that that treatment of milk has received, he holds that if the infant thrives upon its bottles of steam-sterilized milk, that is all that is needed.

The methods of preparing milk for infant feeding are explained in a manner that would do credit to a technical work on the subject.

There is an elaborate chapter on school hygiene, and there are chapters on the various diseases that affect children, with recommendations of the course the parent should pursue while awaiting a physician.

The volume is one that may be recommended to young mothers as a most useful work.

#### BOOKS, ETC., RECEIVED.

*On Peripheral Neuritis. A Treatise.* By James Ross, M. D., LL. D. (Aberd.), F. R. C. P., Late Physician to the Manchester Royal Infirmary, and Judson S. Bury, M. D. (Lond.), M. R. C. P., Senior Assistant Physician to the Manchester Royal Infirmary. With Illustrations. London: Charles Griffin & Company, 1893. Pp. vii-424.

*Mineral Springs and Health Resorts of California, with a Complete Chemical Analysis of every Important Mineral Water in the World.* Illustrated. A Prize Essay, Annual Prize of the Medical Society of the State of California, awarded April 20, 1889. By Winslow Anderson, M. D., M. R. C. P. (Lond.). M. R. C. S. (Eng.), etc. The Bancroft Company: San Francisco, 1892. Pp. xxx-3 to 384.

*Influenza: its Pathology, Symptoms, Complications, and Sequels; its Origin and Mode of Spreading; and its Diagnosis, Prognosis, and Treatment.* By Julius Althaus, M. D., M. R. C. P. Lond., Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park. Second Edition, much enlarged. London: Longmans & Co., 1892. Pp. xii-407.

*The Chronic Disorders of the Digestive Tube.* By W. W. Van Valzah, A. M., M. D. New York: J. H. Vail & Co., 1893. Pp. iv-151.

*A Practical Guide for Beginners to the Dissection of the Human Body.* By Irving S. Haynes, Ph. B., M. D., Demonstrator of Anatomy in the Medical Department of the University of the City of New York, etc. New York: E. B. Treat, 1893. Pp. 7 to 123.

*Bryce's Pocket Practice. A Complete and Condensed Work on the Practice of Medicine for Physicians and Students.* By Clarence A. Bryce, M. D., Richmond, Va. Richmond: The Southern Clinic, 1893. Pp. 5 to 176.

*A Study of Flat-foot: with Special Attention to the Development of the Arch of the Foot.* By John Dane, A. B., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

*Endometritis considered clinically.* By Charles P. Noble, M. D. [Reprinted from the *Annals of Gynecology and Pediatrics*.]

*A Year's Work in Minor Surgical Gynecology at the Kensington Hospital for Women.* By Charles P. Noble, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society*.]

*Points in Office Practice in the Treatment of the Diseases of Women.* By Charles P. Noble, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society*.]



Certain Aspects of Gonorrhœa in Women. By Charles P. Noble, M. D. [Reprinted from the *Transactions of the American Gynecological Society*.]

Quarantine Control. State or National? The Question. A Speech delivered before the Chamber of Commerce and Industry of Louisiana, New Orleans, January 11, 1893, and respectfully submitted to the Honorable the Senate and House of Representatives of the United States in Congress assembled. By Joseph Holt, M. D., of New Orleans, La.

The Middlesex Hospital. Reports of the Medical, Surgical, and Pathological Registrars, for the Year 1891. London: H. K. Lewis, 1892.

Fourth Annual Report of the Health Department of the City of Mansfield, Ohio, for the Year commencing March 1, 1891, and ending February 29, 1892. By R. Harvey Reed, M. D., Health Officer.

Annual Report of the Board of Managers of the Maryland Hospital for the Insane, near Catonsville, Baltimore County, to his Excellency, the Governor of Maryland, November, 1892.

## Reports on the Progress of Medicine.

### PÆDIATRICS.

By FLOYD M. CRANDALL, M. D.

**Instruction in Pædiatrics.**—Dr. Marshall (*Lancet*, July 30, 1892), in a recent address upon diseases of children, referred to the need of more systematic instruction upon this subject. It does not receive the attention in the medical schools that its importance deserves. The young practitioner when he has to face these cases readily yields himself up and feebly remarks that women know more about babies than we do. To some physicians the diseases of children all seem to be included in worms, water on the brain, and constipation. The first step in treating children satisfactorily is tact. This is sometimes natural; more frequently it is acquired. The proper methods of managing children are not learned in the class-room, but can only come to those who seek to obtain it by constant association with sick children. The numerous details connected with diet, dressing, and care of children are not above the attention of the physician, who is not justified in sizing the value of the patient by his length or weight. A knowledge of these matters, which may be included under the heading of Nursery Hygiene, should be learned by the medical student, who should not be required to learn them at the expense of his early patients. It too often happens that he never learns them.

**The Ætiology of Aphthous Stomatitis.**—Ollivier (*Rev. mens. des mal. d. l'enf.*, June, 1892) presents considerable new evidence in support of the proposition that the milk of cows affected by aphthous fever may cause aphthous stomatitis in persons who drink it. The idea was first suggested by Sagar, in 1765, who recorded observations of an epidemic of the disease among monks who used milk obtained from a herd of cows that showed evidence of the disease. The author, while he believes that the disease may originate in this manner, also believes that it may result from local irritation. Fränkel has demonstrated the presence of certain staphylococci, but does not profess to have discovered a specific germ.

**The Action of Atropine on the Eyes of Infants.**—Carpenter (*Lancet*, Aug. 6, 1892) reports a number of interesting investigations upon this subject. It is a well-known fact that children bear large doses of belladonna better than adults without perceptible physiological reaction. Dilatation of the pupil, which

is so distinctive a symptom in later life, according to Ringer, rarely occurs in infants. With this the author agrees, and he has rarely seen a marked drying of the throat. In making ophthalmic examinations, he concludes that the pupil in infants frequently remains for a long time undilated. When that result does occur, it is sometimes very tardy, being delayed for several hours. When atropine is used in the eye, general symptoms not infrequently occur even when the pupil is not affected.

**The Contagiousness of Measles.**—Bard (*Revue d'hygiène et de police sanitaire*, August, 1892), in an article upon this subject, affirms that the contagium of measles does not remain long in a locality after those suffering from the disease are removed. Disinfection of rooms, bedding, and furniture is therefore not necessary. The germs may be conveyed though the air, but the disease is usually directly contagious. The contagious element is active and susceptibility is common. Contagion is possible for several days before the eruption appears.

**Laparotomy in Tubercular Peritonitis of Children.**—Hartman and Aldibert (*Annales de gynécologie et d'obstétrique*, June, 1892) affirm that the first cases of laparotomy for tubercular peritonitis were performed through error in diagnosis. The first operation of this character was performed by Petri. He operated on a girl of fourteen, who was supposed to suffer from an ovarian cyst. The effusion returned a year later, and there were lesions of the bone and glands, but the patient was living twelve years later. The authors report three cases in their own practice. The diagnosis of tuberculosis was confirmed by inoculation in two cases. The first of these cases was a boy of twelve years, who suffered from night-sweats, dyspepsia, abdominal pains and diarrhoea, tympanites, and ascites. The temperature became intermittent and vomiting was persistent. Laparotomy was performed. The abdominal cavity was flushed with warm boric solution, and a drainage-tube was introduced. The symptoms disappeared and a good recovery was made. Tubercular ulceration of the cicatrix was developed, but during the year in which the child was under observation no symptoms of peritonitis appeared.

The second patient was nine years old and was suffering from a tubercular, suppurating, encysted peritonitis. An incision was made, pus was evacuated, and the cavity was irrigated by a boric-acid solution. The patient was emaciated, suffered from severe pain, and had a high intermitting temperature. Eight months later the abdomen was normal in appearance and feeling, and the child had no pain and was strong and hearty.

The third patient was six years of age. Typical symptoms of peritonitis having developed, an incision was made and a small quantity of fluid was evacuated. The cavity was irrigated, as in other cases, and the child recovered.

Forty-eight cases of laparotomy for tubercular peritonitis in children are reported by the authors. Only two of the patients were known to have died, but several were not under observation after the incision closed. In eighteen cases bacteriological examinations were made. Six patients were positively cured; all the remainder recovered at least from the operation. The authors believe that many children suffering from tubercular peritonitis may be cured by laparotomy. Only those cases should be subjected to the operation in which the peritoneal lesions are the principal ones.

**A Study of the Ætiology of Melena of the New-born.**—Pomorski (*Arch. f. Kinderh.*, xiv, 1892) publishes a case of melæna, with vomiting of blood, in a child of four days. The forceps had been used in the delivery. The illness lasted two days, when the child died. The autopsy showed ulceration of the mucous membrane of the stomach and great congestion of all the organs, especially the lungs. A thin clot was found over

the surface of the right hemisphere of the brain, and there was also clotted blood in the fourth ventricle. The right hemisphere was softened and contained two hemorrhagic spots. After a review of the various theories of the etiology of this condition, the author concludes that none fully account for all its peculiar symptoms. Numerous facts have been established by recent observation, which seem to show that certain brain lesions may cause congestion of the viscera and ulceration of the mucous membrane of the stomach. There is reason to believe that some such condition may account for melena of the new-born. To test this the author performed a series of experiments on rabbits, and was able, by destruction of certain portions of the vaso-motor centers, to produce circulatory disorders of the lungs and stomach. These consisted of hyperæmia, with hemorrhages and grave ulcerous processes.

**The Etiology of Primary Croup of the Larynx.**—E. Fränkel (*Deut. med. Woch.*, 24, 1892) reports four cases of primary croup upon which extensive bacteriological examination was made by microscope, culture, and inoculation of animals. The specific germ was found in the membrane of the larynx. In every case this was positively proved to be the true bacillus of Klebs.

**Dyspnoea after the Removal of a Tracheotomy Tube.**—Clarkson (*Edinburgh Med. Jour.*, November, 1892) records a case suffering from a peculiar complication. The patient was a boy eight years of age. Five days after the operation the first attempt was made at breathing through the larynx, but it was five days later before respiration was free with the tube corked. After the child had been breathing through the larynx eighteen hours the tube was removed. Eight hours later, as the child did not seem to be using the glottis, the incision was closed with a dressing; respiration was immediately arrested; the tube was reinserted, and artificial respiration was performed. This sudden obstruction to respiration was supposed to be due to spasm of the glottis. A mixture of chloral and potassium bromide was prescribed, but the child was unable to breathe with the tube corked. Respiration would for a time be natural, but would then become strident, cyanosis would develop, and the cork would have to be removed. This condition continued for five months in spite of treatment. Examination under chloroform at length revealed a mass of granulation tissue flapping in and out of the wound when the tube was removed. It was about as large as a pea, and was adherent to the upper angle of the tracheal incision. This was removed, and at the same time adenoid growths on the posterior wall of the pharynx were removed. On the following day the tube was corked, and the patient breathed without trouble for two days. The tube was removed, and in four days the incision had closed. He was under observation for six weeks longer, and remained perfectly healthy during that time.

**Typhoid Fever in Children.**—Moussous (*Arch. clin. de Bordeaux*, i, 4, 1892) reports fifty cases of typhoid fever in children under fifteen years. Thirty-eight of these were hospital patients. There was a mortality of six per cent. Quinine was freely employed, and a laxative was administered every second day during the first twelve days. A sponge bath was given morning and night. The diet consisted exclusively of milk, and was given in as large quantities as the patient would take. Numerous peculiarities were noticed in the evolution and progress of the disease. One patient, a little girl of four years, in perfect health, was seized suddenly with vomiting, followed by a rapid rise of temperature. At the end of three days the symptoms of typhoid fever were completely established. In two instances vomiting persisted for ten days; in other cases loss of appetite was the only gastric symptom. A cold sponge bath given on the fifteenth day was followed by syncope in one

case. In another, repeated attacks of syncope occurred between the seventeenth and twentieth days. One child died suddenly on the twentieth day while raising herself to take a glass of milk. A carefully conducted autopsy gave no explanation whatever for such a result. Relapses due to too early return to general diet occurred in five cases. The author concludes that typhoid fever in children is marked by less violent symptoms than in the adult, and that complications are not so common. The fever, however, frequently ranges high.

**The Use of Creasote in Scrofula.**—Sommerbott (*Berlin. klinisch. Wochenschr.*, xxvi, 1892) has written favorably concerning the use of creasote in tuberculosis. In this paper he speaks of its favorable action in scrofula. Full doses are necessary, small doses being of no avail. To a child of seven years he gives one gramme per day. It may be given in capsules, if the child can take it in that form. Otherwise it is given in wine or milk. The initial dose should be very much smaller than this, the amount being increased gradually during a period of about ten days to the maximum. It is sometimes poorly tolerated by the stomach. To avoid this it should be administered immediately after meals.

**The Internal Use of Resorcin.**—Menche (*Jahrb. f. Kinderh.*, xxxiii, 1892) reports favorably upon the use of resorcin in diarrhoea of children. It is chiefly indicated to arrest fermentation. In this disease its use should be preceded by calomel in divided doses. If the child is in collapse or is very feeble, calomel should be omitted. Its effect in checking fermentation has, in his experience, been decided. The stools have become less frequent. In gastritis his results have been favorable.

**Rheumatic Carditis in Childhood.**—Octavius Sturges (*Lancet*, August 27, 1892) regards endopericarditis associated with rheumatism in children as by far the commonest of all cardiac affections of early life. Pericarditis ranks next in frequency. Heart affections in children are cast in two great divisions—one, peri-endocarditis, which is rheumatic; the other, pericarditis, resulting from a variety of causes. Recent endocarditis alone is very rare. Heart disease in the strictest sense is almost always rheumatic in the child. If diseases of the heart's investments are included, several other conditions must be recognized as causative agents. The author reports one hundred cases of heart disease examined post mortem during eleven years. Of these, fifty-four cases were rheumatic—twenty-two in boys, thirty-two in girls; and forty-six were non-rheumatic—twenty-two in boys, twenty-four in girls. Of the rheumatic patients, two were between two and four years, four between four and six years, six at six years, and forty-two between six and twelve years. Of the non-rheumatic patients, thirty-two were four years and under, and only eight were over six years. Hence, of the non-rheumatic a great majority were infants. Of the rheumatic, the greater number were between six and twelve years. The preponderance of girls was wholly in the rheumatic division. The great liability of females to rheumatism is generally admitted. Of the non-rheumatic cases, eleven were due to empyema, ten to tuberculosis, four to diphtheria, and three to pneumonia. The rest were associated with nephritis, meningitis, and septicæmia. After a very careful study of pericarditis and pericardial adhesions, and the physical signs observed in each, the author concludes, first, that pericardial adhesion does not prevent exocardial rubbing; and, second, that the presence of such adhesion in fatal cases is much more common than would be supposed, judging from physical signs alone. Post-mortem observation, however, does not always reflect the ways of life. What is true of those who died is not necessarily true of those who recovered. Pericardial adhesion may be of more serious consequence than we

suppose, making sometimes the difference between living and dying.

**Exalgine in the Treatment of Chorea.**—Löwenthal (*Berlin, Klinische Wochenschr.*, v. 1892) reports thirty-five cases of chorea treated by exalgine. The dose was usually about three grains a day. Occasionally fifteen grains a day were taken. The shortest duration of disease was eight days. The effect of the drug was much more distinct and favorable when its administration was begun early in the disease. In most cases the disease continued five or six weeks, but the symptoms were reduced in severity. The unpleasant symptoms were chiefly nausea, vomiting, headache, vertigo, and cyanosis. Jaundice appeared in three cases. The author does not regard exalgine as a specific in chorea.

**The Period of Incubation of Mumps.**—Jessop (*Brit. Med. Jour.*, June 4, 1892) reports a case of a boy who was brought in contact with a person recovering from mumps on March 17th. On April 19th, having been in perfectly good health during the interval, he developed a typical attack of mumps; no other exposure was known. On the day of the onset of his disease—April 19th—his two sisters kissed him. They were then removed and did not see him again. Twenty-one days later—on May 10th—they also were attacked with mumps. This places the period of incubation in these cases definitely at three weeks. All the children were perfectly well during the interval between the exposure and the development of the disease.

#### A Contribution to the Study of the Spleen in Children.

—Paul Gastou and Charles Vallée (*Rev. mens. des mal. de l'enf.*, September, 1892) report an extensive series of observations upon the spleen in children. Hypertrophy of that organ is so frequent in early life that they believe that more exact knowledge of the spleen should be obtained. In opening the abdomen the spleen is not visible, for it is covered by the colon and stomach and also by the liver, which is abnormally large in children. The spleen is found resting upon the anterior lateral face of the first and second lumbar vertebrae. The weight and form vary considerably even in health. The following conclusions are drawn from eighty autopsies made by Frerichs: 1. The weight and dimensions of the spleen under normal conditions vary with the weight and dimensions of the body. 2. The maximum weight of the spleen compared with the body weight occurs at eight years. 3. The weight of the spleen at one year is about thirty-two grammes; it increases ten grammes a year up to eight years. 4. The weight of the spleen increases with age more than that of the other organs. 5. The elasticity of the spleen accounts for its frequent and extreme changes of volume.

The physiology is uncertain. The organ seems to take some part in digestion, in the formation of the blood, and perhaps in the destruction of bacteria. It has been proved that after removal of the spleen animals are much more susceptible to infection, and pathologic germs appear in the blood in greater numbers.

The spleen may be normal or a little less in weight in tuberculosis, broncho-pneumonia, measles, and athrepsia. Hypertrophy of the spleen is the general rule in acute infectious diseases, typhoid fever, meningitis, endocarditis, syphilis, rickets, leucæmia, and tuberculosis.

Examination of the spleen by percussion is very uncertain and misleading. Diagnosis must be made by palpation. The condition of the liver, stomach, and colon affects its apparent size. In determining the edges of the spleen, percussion should be made in a vertical line from the axilla to the anterior superior spinous process of the ilium. The lateral borders are determined by percussing horizontally from the nipple to the spine. Errors are often made by percussion and no spleen can be positively said to be enlarged unless it can be felt by the fingers be-

neath the false ribs. The patient should lie upon the back with the knees flexed, the head brought forward, and the muscles lax. Two general conclusions are drawn by the authors: 1. An enlarged spleen indicates bad nutrition or an infectious disease. 2. Continued enlargement of the spleen is of more value for prognosis than for diagnosis.

**Congenital Wryneck.**—Murray (*Med.-Chirurg. Jour.*, July, 1892) believes that this disease is analogous with talipes equinovarus for the following reasons: 1. They are congenital diseases and usually occur in otherwise healthy children. 2. The deformity is maintained by shortening of the flexor muscles and fascia. 3. The skin and subcutaneous tissues are stunted in the flexor region. 4. The appearance of the diseased parts is not that of hypertrophy, but a stunted growth. 5. The reaction of the muscles to electricity is normal. 6. The deformity increases with the growth of the child. 7. Paresis is absent and the limitation of motion is due entirely to the condition of the tissues.

## Miscellany.

**"Seedy Toe" in Horses.**—The February number of the *American Veterinary Review* contains the following paper, by Mr. W. Bryden, V. S., of Boston, read before the Massachusetts Veterinary Association:

"About fifteen months ago I was called to examine a lame horse, one of a handsome pair of grays, used on the engine of the fire department at Melford, a pleasant town situated some five miles from Boston. They were a well-matched, nicely trained span of strong, speedy horses, some ten or eleven years old, fifteen hands three inches high, and weighing about fourteen hundred pounds each. Being general favorites, it was ill news for the boys when they learned that one of their splendid gray fire team was seriously lame.

"On examination of the derelict foot (the off fore one), the disease was found to be what is generally known as 'seedy toe.' It had evidently been affected for many months, gradually showing greater brittleness of the lower part of the wall and of the sole in front. Indeed, the characteristic retrograde changes in the horn at the coronet in front, and its separation and projection nearer the toe, proclaimed the foot a victim of hoof depravity of many months' existence; and the stage it had arrived at, one which Nature with all the assistance art could give her, would require months to repair, unless a job of patchwork should be attempted and prove satisfactory to the owner.

"The near foot was also imperfect, but from a different combination of circumstances. The wall had general contraction, but it did not become short and brittle at the lower margin of each side of the hoof, nor was the growth at the coronet in front almost entirely arrested, as shown by the other foot—two features of great interest and significance in the pathology of the horse's feet and limbs. Another point worthy of note suggested by the case is that (1) laminitis followed by seedy toe may possibly be quite a different pathological condition—only one foot being usually affected; and (2) laminitis followed by chronic founder, in which two fore feet, two hind feet, or all four feet, are simultaneously and similarly affected. As both are curable conditions up to an advanced stage, and the treatment much alike, the importance of being able to discriminate between these two conditions is robbed of some of its practical value, but not of its scientific interest—i. e., whether one has an element of constitutional trouble which is wanting in the other.

"In studies of this subject it is well to bear in mind that the hoofs of horses vary greatly in form, size, and quality in individuals, even of the same family; and that domestication, with the restraints incident thereto, subjects them to many unfavorable experiences and adverse changes which still further predispose them to unsymmetrical growths, perhaps to diseases of the limbs, especially those peculiar to their species. For example, hoofs sometimes do not grow alike—i. e., it is not unusual to find the two fore feet mismatched, or the two hind ones either; indeed, all four feet may be different. Other circumstances,



such as want of tear and wear, unsuitable soil and climate, accidents and exposures, especially during colthood, when the hoofs are growing, or rather developing, often incline them to defective forms and qualities at maturity, which are readily excited to disease when the animal happens to be assigned to labor and surroundings unfavorable to its limbs. Seedy toe is oftentimes found affecting a fore foot, and predisposition to this family of diseases may be the result either of heredity or of some peculiarity acquired after birth.

"There are many different degrees of such hoof depravity, as well as stages of degeneration, and it is in their repair, rather than in their early history, where their greatest resemblance is often seen.

"1. One case may be nothing more than a small discolored area of sole where a nail has been driven too deep into a part where the vitality of the tissues has become so much impaired that they are unable to contribute their share either to their own nourishment or in repairing the injury.

"2. Another case may be a foot with its hoof so warped and deformed that it resembles a clubfoot; a frequent exciting cause of this is when the coronet is crushed from a loaded team passing over it.

"3. Another case may be one where the secreting structures at the pyramidal process are so crowded that the wall in front stops growing, and so do the laminae extending to the toe. When these laminae give way, the toe of the coffin bone is forced down and back till it rests on the sole just in front of the frog; here it soon becomes bruised, then thin, and finally convex; the space between the coffin bone and the wall in front becomes filled with *débris*; the wall between the coronet and toe settles down, while the hoof at the heels grows vigorously, forcing the wings of the coffin bone upward and the pyramidal process forward against the defectively nourished wall in front, the toe of the coffin bone being held back by the perforatus tendon inserted in its sole. This variety has usually been described as an example of chronic founder of one foot; it is the form from which 'Mortimer' suffered when Mr. Lorillard imported him from France. The following gives an outline of a case frequently met with—viz.:

"When the sole has been dressed with a rasp, the zone between the sole margin and the wall, which ought to be white, is found to be red. At next shoeing it will be a brown color; next it will be still browner, and so on till the wall and sole are entirely separated and crumbling. A gradual destructive change takes place within the foot where the circulation and other vital functions have been gradually becoming more disturbed and interfered with, perhaps for months. Accidents, such as burning with a hot shoe, must not be mistaken for this disease in its earliest stages. As the coronet gradually tightens it exerts mechanical pressure on the coronary cushion and laminae; the circulation is diminished in force and volume, and the wall shortens more and more from the extremities of its horn fibers crumbling faster than it grows, till it can not be reached by the nails. When the foot is without protection from either horn or shoe it is unfit for work until Nature has restored the part sufficiently to secure the shoe with nails.

"The stage at which this disease has arrived indicates with considerable exactness both its age and the time required for its repair. As already stated, cases vary accordingly as they reveal a history of gradual invasion, or evidence of having been hastened by some coincident, such as an accident, or from harsh or improper treatment.

"With your permission I will now illustrate my remarks by describing the treatment of the Medford horse. It was my good fortune to find the superintendent, Mr. Arthur Symms, a gentleman of more than ordinary judgment in matters pertaining to the horse's feet and limbs. He did not expect me to perform a miracle, or to cure the beast in one or two times' shoeing. After examining the case carefully, I assured him that complete recovery was possible, but that it would take at least eight months before he could again be used on the engine, as it would require that length of time before the hoof could grow down sufficiently for a shoe to be fastened so as to be equal to the quick, heavy work demanded in such a place. During most of the time, I further assured him, the horse could do enough slow, light work to pay for his keep, and as I would only require to see him about once a month it would pay well to treat him rather than sacrifice a good animal by selling him for about \$25, which was all any one would be likely to give for him with hardly three legs to stand on.

"It was decided immediately to let me take charge of the case, so he was led into the shoeing shop, where I had the hoof trimmed as follows: From the coronet about half way to the toe the horn grew in narrow circles, gradually increasing toward the heels; below this at the toe the horn projected away from the coffin bone, the toe of which had crumbled away. The circles at the coronet in front, and the projecting horn lower down, were all rasped and cut away till the part looked more like its natural shape. This left the heels high and the coffin bone in the position of an upright wedge, the diseased toe pointing to the sole in front of the frog where the part was settled down. To correct this position of the coffin bone the commissures were pared out and the heels opened and lowered; after this the wall was thinned at the heels and wherever else it could be done without interfering with the nailing on of the shoe as early as possible. Above the nail holes a saw was used to cut the wall in line with the horn fibers; this instantly freed and limbered the crowding wall, and yet left enough hoof to nail to, which the rasp would have taken away. The saw is the same formerly used for 'diamonding' the wall in cases of ringbone, side bones, enlarged cartilages, etc., cases where the hoof is always contracted. After carefully adjusting the hoof so as to set the coffin bone at an angle which would relieve the crowding of the pyramidal process and adjacent coffin bone against the horn in front by allowing the wings of the coffin bone to settle between the hoof heels, a shoe was fitted as follows:

"A plain, light shoe with a fairly wide web was taken, and from the toe to the second nail holes was hammered out thin, and then rolled up in front of the foot to protect the part which the disease had denuded of its horny protection from coming accidentally in contact with the ground. Side lips or clips were turned up at each side to relieve some of the strain from the nails, and the nail holes were punched so as to be in line with and reach the wall which was strongest. Two heel-corks were then turned up about one third of an inch high, and two more the same height, one on each side, set back from the toe about two inches; when the shoe was applied he still walked lame on it, but after poulticing it for about three weeks every night with oil meal and five-per-cent. solution of carbolic acid, the hoof began to start growing, the sore spots to become less tender, and he was able to perform daily errands and slow, light work.

"As the department buildings are near the marshy banks of Mystic River, he was allowed to stand in an open pen of fresh peat bog every day for an hour or two when not in poultices. The hoof was reduced every time he was shod, the wall grew down with perfect regularity until, at the conclusion of eight months, he was returned to his old place on the engine as sound as ever. Twelve months after my treatment commenced there was no trace of the disease excepting a hollow place or dent in the toe, showing where the point of the coffin bone had crumbled away from necrosis."

**The International Congress of Charities, Correction, and Philanthropy.**—One of the series of international congresses to be held in Chicago in 1893 is to be devoted to the subjects of charities, correction, and philanthropy, and the fourth section of this is to consider all matters relating to the hospital care of the sick, the training of nurses, dispensary work, and first aid to the injured. The committee of organization of the congress has appointed Dr. John S. Billings, surgeon, U. S. Army, as chairman of this section, and Dr. Henry M. Hurd, superintendent of the Johns Hopkins Hospital in Baltimore, as its secretary, and has authorized and requested them to complete its organization, to extend invitations, and to prepare a programme for its work. Miss Isabel A. Hampton, superintendent of the Training School for Nurses of the Johns Hopkins Hospital, has been appointed chairman of that part of the work of the section which relates to the training of nurses.

This section will hold five meetings of about two hours each, commencing June 12th, and will also have charge of one of the general sessions of the congress—viz., that held on the morning of June 14th.

It is desired that this shall be a truly international gathering for conference on the subjects allotted to this section, and all who are interested in hospitals, in training of nurses, in dispensaries, or in first aid to the injured are cordially invited to be present, to contribute papers, and to take part in the discussions.

The papers and proceedings will probably be printed as a separate volume, and it is hoped that this will represent the best methods and the best work in each of these departments in all parts of the world.

The following are suggested as subjects for special consideration in papers to be prepared:

1. Hospital organization; governing bodies; relations of the medical staff and of nurses' training schools.
2. Hospital finances; means of support; mode of keeping accounts; cost.
3. Plan and construction of recently built general hospitals, embodying the latest improvements.
4. Relations of hospitals to increase of knowledge, to medical education, and to the medical profession; hospital records, statistics, and reports.
5. Pay patients in hospitals.
6. Isolating wards and hospitals for contagious diseases.
7. Hospital diets, dietaries, kitchens, etc.
8. Hospital amphitheatres and operating rooms.
9. Hospital laundries and disinfecting establishments.
10. Army and navy hospitals; emergency hospitals in time of epidemics; temporary and movable hospitals.
11. Small and special hospitals, cottage hospitals, school hospitals, private hospitals, sanatoriums, etc.; convalescent hospitals, and what to do with incurables.
12. History and present condition of hospitals in the large cities.
13. Training schools for nurses.
14. Dispensaries; relations to the public and to the medical profession; dispensary records.
15. First aid to the injured; associations for best means of popular instruction in and its place in general education.

Persons desiring to present papers or to share in the discussions of this section are requested to communicate with the secretary at once. The period of time allotted for the preparation of the programme is necessarily brief, and it is essential that all who are willing to assist in this work should act promptly.

Nurses will take part in the general session and in two sectional meetings, and will hold in addition three separate meetings—June 13th, 14th, and 17th.

For these three separate meetings papers on subjects of special interest to nurses will be prepared and discussed. The following are suggested as subjects to select from:

Training schools in England and America; the proper organization of training schools; nursing in infirmaries and almshouses; nursing of the insane; obstetric nursing; nursing of infectious diseases; nursing in sanatoriums and home hospitals; private nursing; nursing by religious orders; the work of graduate nurses.

All communications relating to this portion of the work of the section should be addressed to Miss Isabel A. Hampton, chairman, the Johns Hopkins Hospital, Baltimore.

**The Pan-American Medical Congress.**—The following preliminary manifesto of the Section in Diseases of the Mind and Nervous System has been issued:

*Honorary Presidents:* Dr. Jorge Diaz Albertina, Havana, Cuba; Dr. Juan C. Castillo, Lima, Peru; Dr. C. G. Comegys, Cincinnati; Dr. F. X. Dercum, Philadelphia; Dr. J. T. Eskridge, Denver, Col.; Dr. Orpheus Everts, College Hill, Ohio; Dr. Juan M. Covantes, Mexico, Mexico; Dr. Allan McLane Hamilton, New York; Dr. W. A. Hammond, Washington; Dr. P. O. Hooper, Little Rock, Ark.; Dr. Henry M. Hurd, Baltimore; Dr. J. G. Kiernan, Chicago; Dr. J. A. McBride, Wauwatosa, Wis.; Dr. Charles K. Mills, Philadelphia; Dr. Moncorvo, Rio de Janeiro, U. S. of Brazil; Dr. Putnam, Boston; Dr. E. C. Seguin, New York; Dr. E. C. Spitzka, New York; Dr. G. Isaac Ugarte, Santiago, Chile; Dr. Samuel Webber, Boston; Dr. Joseph Workman, Toronto, Canada,

*Executive President:* Dr. C. H. Hughes, 500 N. Jefferson Avenue, St. Louis.

*Secretaries:* Dr. A. B. Richardson (English-speaking), Columbus, Ohio; Dr. M. G. Echeverria (Spanish-speaking), Key West, Fla.; Dr.

Melendez y Caorea (Hospicio San Buenaventura), Buenos Ayres, Argentine Republic; Dr. Nicolas Hortiz, La Paz, Bolivia; Dr. Carlos Eiras, Rio de Janeiro, U. S. of Brazil; Dr. Stephen Lett, Guelph, Canada; Dr. Plaloo, Kingston, Jamaica; Dr. Paolo Garcia Medina (Carrera 8, No. 277), Bogotá, Colombia; Dr. Emillano Nuñez (Galiano, 19), Havana, Cuba; Dr. José Azurdia, Guatemala, Guatemala; Dr. George Herbert, Wailuku Maui, Hawaii; Dr. Secundino E. Sosa (Hospital de Mujeres Dementes), Mexico, Mexico; Dr. Pellais, Leon, Nicaragua; Dr. Francisco Soca (Florida, 90), Montevideo, Uruguay; Dr. Hemiterio Formez, Merida, Venezuela.

"Every effort," says the circular, "is being made to make the meetings of the Section in Diseases of the Mind and Nervous System both scientifically profitable and socially pleasant. Papers of distinguished merit from neurological students and physicians eminent in psychiatry have been promised. Every physician on this continent of America, North or South, is hereby cordially solicited and welcomed to join in the meetings of this important section of the approaching Pan-American Medical Congress; and it is hoped, by unity of effort and cordial co-operation, to make the Section in Nervous and Mental Diseases second to none in the congress in fruitful results."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*







Dr. Taylor's Article on the Pigmentary Syphilide.

## Original Communications.

## THE PIGMENTARY SYPHILIDE.\*

By R. W. TAYLOR, M.D.,

CLINICAL PROFESSOR OF VENEREAL DISEASES  
AT THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

The history of the pigmentary syphilide is a most peculiar one. It is an affection which at first was clearly and sharply described, but which in the course of time has been rendered so obscure that to-day very few have clear and precise ideas as to its course and its nature. In the whole range of syphilography there is not a like instance in which the knowledge of a manifestation of syphilis has become so progressively obscure and in which so much confusion has been interjected by reason of the successive additions to its literature by many writers. In the sixties we knew what the pigmentary syphilide was as a result of the writings of Hardy, Fournier, Pillon, and Tanurri. To-day this well-marked and peculiarly characteristic affection is so little understood that it is confounded with the pigmentations and the leucodermatous conditions left as a result of previous syphilitic processes. The writings of Neisser, Riehl, Ehrmann, Poelchen, and Szadek have had much to do with the obscuration of this question, for these authors regard any pigmentation or leucodermatous condition primary or secondary to a previous syphilitic process as examples of the pigmentary syphilide.

We can not too strongly insist upon the necessity of holding fast to the postulate that the pigmentary syphilide is a unique, well-marked affection, having a sharply defined pathological basis and a course attended by well-demonstrated morphological changes. As a corollary of this, I may add that secondary pigmentations and leucodermatous conditions occurring in the course of syphilis, as relics or sequelæ of lesions chiefly secondary, are in no sense examples of the pigmentary syphilide; they are simply dischromatous accidents and not sharply defined essential affections.

The reasons why this confusion has been induced are many, and the chief ones are the following:

1. Many of the writers have had little experience in the study of syphilis, and have written in a dogmatic manner from the observation (and that usually very limited as to time) of one or perhaps two cases.

2. Conclusions have been drawn from clinical appearances presented at various stages in the progress of the affection, which, being of long duration and presenting at different periods varying pictures, can not be well understood by any one unless he has had his case or cases under his observation during the whole period of development, evolution, and involution of the affection.

3. With one exception (Maieff), authors have studied the question from a histo-pathological basis in a haphazard way, but have been none the less dogmatic in their

conclusions. Thus no observer until Maieff's time studied the disease microscopically step by step in accordance with its natural evolution. On the contrary, sections of skin were made indiscriminately in cases of secondary pigmentations and leucodermatous conditions, and perhaps in cases of the true pigmentary syphilide. In no instance is any distinction observed. In this way discrepancies have been produced, and flat contradictions and anomalies have resulted.

4. Every pigmentation in a syphilitic, recent or old, is called the pigmentary syphilide, and the latter is thus deprived of its essential character.

For many years I have carefully studied the affection upon a large number of patients, in many instances during its whole course, and I venture to present my conclusions, now feeling confident that they are correct and with the hope that the light on this subject here offered may extend and do something to dissipate the prevailing doubt, obscurity, and confusion.

The primordial pigmentary anomalies due to syphilis consist essentially in a superpigmentation, which may in whole or in part be replaced by a corresponding loss of color or leucodermatous condition. This primordial hyperpigmentation is the essential pigmentary syphilide; all other discolorations are secondary processes and in no manner entitled to be classed as pigmentary syphilide.

The pigmentary syphilide is seen in three well-marked and quite distinct conditions:

1. In the form of spots or patches of various sizes.
2. As a diffuse pigmentation of greater or less intensity, which sooner or later becomes the seat of leucodermatous changes in the shape of small spots which gradually increase in size. This is the retiform pigmentary syphilide—the *syphilide pigmentaire à dentelles* of Fournier.
3. In an abnormal distribution of the pigment of the skin, in which, owing to the lack of or crowding out of the pigment in places, they become whiter, while the parts involved in the abnormal distribution become darker; in this way a dappled appearance is presented. In this form there is probably no excess of pigment; it is seemingly unequally distributed throughout the tissue expanse. This form has been termed the marmoraceous, from its resemblance to some forms of marble in which there is an intimate interblending of light and darker colors. This marmoraceous pigmentary syphilide is not common, and it is peculiarly liable, by reason of its delicacy of tone and tint, to pass unobserved.

The pigmentary syphilide in the form of spots or patches consists of round, oval, or irregular plaques, which may have sharply defined borders or their margins may be denuded or jagged. Their color varies from a light-brown *café au lait* to even a quiet deep-brown tint. They are unaffected by pressure and the condition of the circulation. In persons of light and delicate skin they may be very faint in tint and perhaps only perceptible in oblique light. In Fig. 3 an admirable picture of the spot-form pigmentary syphilide is shown. In this case the pigmentation was very deep. It was under my observation for a long time, during which I

\* Read before the American Association of Genito-urinary Surgeons, June 21, 1892.

observed its evolution as pin-head-size spots, which increased in area until they reached the size shown in the figure. In this woman this eruption appeared toward the end of the first year of syphilis. Prior to its onset the neck had not been invaded by syphilitic lesions of any form; consequently this eruption was not a posthumous expression of an antecedent eruption.

In this form of pigmentary syphilide it is common to see the uneven distribution of the pigmentation; sometimes the color is deeper at the margin. Commonly there is no involvement of the intervening skin, though sometimes the hyperchromatous condition produces the illusion that the unaffected skin is whiter than normal. These pigmented spots may remain unchanged and indolent for months, particularly in cold weather. In the course of time they show evidence of fading and they slowly disappear. The process of involution may begin at the margin and extend centripetally, or it may take place in the whole morbid area. In some cases colorless patches are left after the disappearance of the pigmentation; there is then produced a secondary or pseudo-leucoderma. Now, if a case is seen only in this stage, I can well understand an observer reaching the conclusion that the process was an atrophic one; consequently it is easy to see why so much is written upon syphilitic leucoderma and syphilitic vitiligo. These expressions clearly show the want of a full knowledge of the disease, and that the observer has only acquainted himself with its stage of decline. In most cases the skin retains its normal appearance after the full involution of this syphilide. In Figs. 4 and 5 is well shown a disseminated eruption of pigmented spots which followed a papular syphilide. This is an excellent illustration of secondary pigmentation.

The second form of pigmentary syphilide—the lace or retiform variety—is far more common than the previous form. More or less slowly and even rapidly the sides of the neck become discolored, the tint being that of *café au lait*, or even of decided yellowish brown. The most common site of this eruption is on the sides of the neck and perhaps on the back of the neck. The patients usually say that they noticed, or were told, that their necks were getting or had got dirty. Intelligent and observant patients will very often distinctly state that their trouble began with a browning of the skin, and they will state positively that there was no intermingling of white spots. From the neck this eruption may extend more or less extensively over the trunk, mostly anteriorly or down the arms. I have never seen it go up on the face. In many cases this eruption passes unnoticed and may be attributed to the action of the sun, to irritation, or even to uncleanness. When the pigmented patch has involved more or less of the sides of the neck a peculiar change will be observed in it—namely, the development of whitish spots which may be taken for leucoderma. Scattered irregularly over the pigmented surface close observation will show a few or many minute white specks, which in a short time, particularly in hot weather, will be large enough to present definite shapes, which may be round, oval, linear, or irregular. These white spots gradually grow, and in many instances the neck is largely covered with them before the patient knows of

any change having taken place. They then say or are told that their necks are growing white. Undoubtedly many a doctor, upon this information being given him, has concluded that he has a case of leucoderma before him. Sometimes the white patches are distinctly lighter than the normal skin; in other instances the contrast between dark and light is illusory, and there is really no difference in color between the so-called leucodermatous patches and the unaffected skin. The white spots may or may not be sharply margined, in some cases the line of margination being clear and sharp and in others indistinct. I have never seen the thin, filmy, superpigmented area around white patches of true pigmentary syphilide which we see so clearly and so commonly at the circumference of patches of leucoderma or vitiligo, as it is called. This point, in my judgment, is of diagnostic import, and is explained by the pathology of the disease to be considered further on. The tendency of the white spots to extend necessarily means the diminution of the brown background. In this way we have various pictures presented, as shown in Figs. 1 and 2. In this way is produced a dappled appearance, which warrants the name for this eruption at this time of the *dappled syphilide*. Toward the final stage of the disease the preponderance of the white spots leaves only round, oval, or wavy lines or strands of brown pigment, which gives the appearance of lace with large meshes, the interstices being formed by the white spots, which are round, oval, gyrate, linear, or irregular. In this way the skin in the course of months, and in some cases of a year or more, gradually seemingly returns to its normal condition. In the study of these cases I have sometimes seen during the activity of the process a mild and ephemeral hyperæmia, which might easily have escaped observation, and the question suggests itself to my mind whether or not a mild form of congestion may precede the hyperpigmentation.

In Fig. 1 this form of the pigmentary syphilide is well shown covering the neck, the anterior and lateral parts of the trunk, and the anterior surface of the arms as far as the insertion of the deltoids. This case is remarkable and exceptional and well merits record. It was that of a girl, nineteen years old, who had two large vulvar chancres. At the date of evolution of the secondary manifestation she had a mild roseola upon the forehead, lower part of the neck, and of the whole chest. The back was quite well covered, as were also the thighs. She also had pharyngitis. With the evolution of the roseolar eruption the pigmentary syphilide began upon the neck, and within three weeks the whole anterior portion of the trunk was invaded from above downward. In the course of a month involution began around the roseolar spots and also upon the abdomen, where there were no spots. The appearances as shown in the lithographic plate are so clear and striking that further description is not necessary. Here, then, we have a well-marked instance of the coeval appearance of the roseolar and pigmentary syphilide at the very onset of the secondary stage. In six months no evidence of pigmentation could be found on this girl's body. She also suffered from analgesia of the backs of the hands and fingers. This case stands out strongly in refutation of the assertion—based, I





FIG. 2.—Spotted form of pigmentary syphilide.



FIG. 3.—Retiform pigmentary syphilide.



FIG. 4.



FIG. 5.

Pigmentations secondary to the papular syphilide.





think, on faulty and limited observation—that the pigmentary syphilide always and invariably follows in the wake of some other syphilitic process, exanthematous or papular. From all these facts and considerations I am at a loss to understand why two opinions can be held regarding this affection which is so decidedly uniform in its development, course, and decline.

The third or marmoraceous form of pigmentary syphilide is by far the least common. Its mode of invasion is slow and aphlegmasic, and there is little or no hyperpigmentation. The natural color of the skin, in spots of irregular size and shape, becomes white, while the margins, which are hazy and indefinite, become browner than normal. It seems to be a displacement of pigment resembling strikingly some delicate varieties of marble in which there are imperceptibly blended shades of white and very light black. In my experience, this form is always seen on the sides of the neck, and it does not show a tendency to extend. It can only be found upon persons of delicate skin, and very often only by close observation. It slowly disappears and the skin is left in its normal color.

As I have already stated, I attach little if any importance to the mass of literature relating to the pathological anatomy of the pigmentary syphilides, since the investigations were made in general at haphazard upon any pigmented or achromatous skin without any consideration for the stage of the process or for the clearness of the diagnosis.

Maieff's \* observations, made under the direction of Professor Tarnowsky, are worthy of unqualified acceptance, for the sections of skin were taken only from patients suffering with the primary pigmentary syphilide, and the morbid process was studied upon very many sections made in tissues in all the progressive stages from its evolution to involution. Further, these microscopic studies were supplemented by prolonged and accurate clinical observation. Maieff thinks the pigmentary syphilide is due to a chronic specific inflammation of the minute blood-vessels of the skin which may be due to nutritional changes incident to the early and active period of syphilis. At its inception the morbid process consists in endothelial inflammation with cellular infiltration into the adventitia of the vessels, which are thereby diminished in caliber and even occluded. As a result of the circulatory disturbance the red blood-cells lose their pigment, which escapes and infiltrates the adventitia of the vessels, the connective-tissue cells, those of the derma and of the Malpighian layer, and even works its way into the lymphatics. During the evolution of the process most of the altered vessels become completely obliterated, the papillæ become stunted and undergo atrophy. Then the pigmentation begins to be gradually absorbed, the color of the skin grows less intense, and gradually and slowly the discoloration disappears, leaving in its wake a whitish surface.

These microscopic demonstrations, it will be seen, agree perfectly with the clinical history of the pigmentary syphi-

lide and show beyond a doubt that this eruption has a definite and orderly mode of evolution and of involution.

In the light of its clinical history and of its pathological anatomy, it is, I think, now clearly proved that this syphilide begins as a true specific superpigmentation which is the essential feature of the morbid process, and that the subsequent leucodermatous changes are those of a degenerative nature, consequently dependent upon and secondary to the initial dischromia. It can therefore be seen how illogical and incorrect it is to call this affection syphilitic leucoderma, or syphilitic vitiligo.

It is refreshing, when one has gone through a mass of immature and unsatisfactory literature upon this subject by men who have generalized and dogmatized upon feeble and insufficient bases, to read a communication which bears evidence of patient, prolonged study by a man who starts in without bias, theory, or prejudice. Such a communication is that on the pigmentary syphilide made by Dr. Fiveisky \* at the suggestion of Professor Pospeloff. (It thus happens that the most reliable and noteworthy of recent contributions to this subject have been made at the suggestion of two eminent Russian professors—namely, Tarnowsky and Pospeloff.) After an exhaustive study and research on this subject, Fiveisky has convinced himself that the disease commences with an increased pigmentation of the skin, usually of the neck, and that, after a while, there appear upon the brown surface minute circular or oval white patches or islets, which gradually increase in size and take the place of the diffuse brown pigmentation. This is in direct confirmation of what I have maintained for many years, and which has been denied by several German authors.

There are men who, by their utterances, show that they have observed little and know less concerning this syphilide, who in a flippant way pass it over, or speak of it as a curiosity unworthy of a place among the numerous manifestations of syphilis. Such a position is both faulty and unscientific. I have many times been aided in the diagnosis of syphilis by the observation of the pigmentary syphilide when all the other early manifestations had disappeared (even the ganglia in some cases were not sufficiently enlarged to offer aid in diagnosis). So that to me a knowledge of the clinical history of the syphilide has been important and helpful. I am therefore glad to see that Fiveisky says (and his opinion is indorsed by Professor Pospeloff and Dr. Jebüneff) that this syphilide constitutes one of the most characteristic and most reliable diagnostic signs of condylomatous syphilis (that is, of syphilis in the secondary stage).

Before a man makes dogmatic statements and takes a stand hereafter in this question of the pigmentary syphilide he must show, first, that he is well versed in dermatology and syphilography in order that we may feel confident of his diagnosis; second, he must show a full knowledge of the secondary pigmentary and leucodermatous conditions observed in syphilis; third, he must give evidence that he has seen at least ten typical cases of this

\* Contribution à l'étude de la syphilide pigmentaire. *Comptes rendus du congrès international de dermatologie et de syphiligraphie*, Paris, 1890.

\* *Meditsinskoe Obozrenie*, No. 2, 1891, p. 167.

syphilide, and that he has observed and recorded its varying appearances and features from the time of its first invasion until its final disappearance; fourth, he should, if possible, study (or have some competent person in histology study for him) the varying pathological changes beginning in the brown stage and running through the course of the disease until its final extinguishment. I hope my readers will insist upon the fulfillment of at least the first three of these requirements. If they will do this, they will see in future fewer of the jejune and misleading essays upon the pigmentary syphilide. For my own part, I like, for the sake of completeness, to append to an essay of the size of this one a complete bibliography, but, though I have it under my hand, in charity I refrain from inflicting it upon my readers. There have been published, however, within the past ten years a few essays of some merit, besides those above quoted, on this subject, but they have not been of such striking character that I deem them worthy of special mention.

## THE ABUSE OF OOPHORECTOMY IN DISEASES OF THE NERVOUS SYSTEM.

By ALLAN McLANE HAMILTON, M.D.

THE empirical treatment of nervous and mental diseases has lately received a new impetus at the hands of certain injudicious persons, and while some excuse is afforded by the general disturbance which is often associated with perverted function or disease of the pelvic organs, it can not be denied that in a great number of cases there is little warrant for a certain class of operations when the hoped-for results are simply a matter of guesswork. Since the practice of excision of the ovaries became more or less the fashion, I have watched its use and abuse so far as its bearings upon my own special line of study were concerned, and in speaking as I am about to, it is with a full appreciation of its value, which I believe is exceedingly limited, except when well-marked and previously recognized structural disease of the organs is determined. Of the necessity for surgical measures for the relief of these local conditions I will not speak. So far as I know, oophorectomy has never cured a case of well-established or even incipient organic nervous disease, or has proved to be of the least use except in functional disturbances that could have been cured, or at least helped, by agencies of a far less dangerous nature. Perhaps in making this statement I shall antagonize a great many persons who have been quick to ascribe all manner of erratic manifestations to derangements of the organs contained in the female pelvis, but an experience of many years has impressed me with the fact that a great many fanciful causes are often supposed to account for equally unstable neurotic expressions. Often-times theories are built upon the imperfectly understood and elastic conditions known as "reflex excitability" and "reflex irritation," and while the retroactive and local disturbances that may be explained in this way have to some extent an underlying basis of physiological experiment, I am convinced that the gynecologist is frequently at fault

in not considering the part the *entire* nervous system plays in the development or existence of local depraved states. To what particular degree the ovaries enter into the production of nervous disorders is a matter of great doubt and speculation, and it is always well to assume that the disturbances in which they are supposed to figure are of a general character, and follow a more or less profound upheaval of the functions of the cerebro-spinal and sympathetic systems, and as well to inquire whether the pelvic derangements are not more a result than a cause. The researches of neuro-physiologists and clinicians go far to show that neuroses of development are those in which diseased ovarian functions are quite, if not more, common than where intrinsic disease of the organ itself is regarded. Bevan Lewis emphasizes this statement, and my own experience confirms his views. In the majority of cases it is certainly well to inquire whether the difficulty is not due rather to causes that have to do with the *general* physical defects, and particularly those of the nervous system, than a variety of neuroses in which irregularity of the functions of the pelvic organs plays a more prominent part than anything else; and I think there can be no difficulty in proving that most conditions, whether they arise from the influence of defective heredity or incidental aetiological causes, are the determining factors. It is well known that a variety of disorders which are supposed to be essentially seated in the genital organs may exist without lesions or abnormalities of these parts, and whether, as Rosenthal says, "hysteria is nothing but a congenital feebleness of resistance or one acquired by the vaso-motor centers." Fox, in speaking of the cases which are nowadays so often operated upon, adds the weight of his testimony by the assertion that "neurotic symptoms may be developed without any connection with the generative organs; many lesions of the uterus and ovaries occur without any trace of such phenomena." He, however, while admitting the important local disturbances of function, adds: "The condition of these organs explains nothing as to the real nature of the disease."

When we study the origin of nervous disease in connection with the development of the organs of the nervous system, and when our subjects are sufficiently varied, there can be little doubt that the underlying condition should be the first consideration as the genesis of delayed or aborted function.

In speaking of mental diseases, Lewis tersely expresses himself: "Often is the question asked in cases of insanity accompanied by amenorrhoeal states at this period of life, 'Is the menstrual disturbance the origin of the cerebral disturbance, a simply coincidental state or the result of the nervous disturbance?' If, however, we regard this period as a great psychical developmental stage in which the unfolding of the generative system goes on *pari passu* with its representation throughout the innermost penetralia of the central nervous system, then we must regard the physical and mental expression of this development (the sexual characteristics, bodily and mental, and the menstrual flux) as associated features as to the obvious signs of what is going on within the pelvis and within the cranium."



It is hardly necessary to refer to the thousand and one influences that interfere with the "development of the organism," or the development of all manner of nervous derangements that react upon the pelvic organs and give rise to evidences of malnutrition; there is perverted function, which expresses itself in morbid emotional states, vicious habits, and sexual disturbance, and these are not infrequently associated with well-defined expressions of general nervous disease.

The mistake is made, I think, too often in regarding the amenorrhœa which frequently evidences the condition leading to cerebro-spinal malnutrition, and which, after all, has a central causation rather than a pelvic one; and in this connection it quite possible, in the opposite condition, with perfectly healthy ovaries, to have disorders consisting in losses of blood which do not directly depend upon any excitement *per se* of the organs of generation themselves.

My first personal knowledge of oophorectomy dates back nearly ten years, when a medical man, whose faith in the use of the knife was a matter of comment, removed both ovaries of a cataleptoid woman, who died a few days afterward without any other change resulting from the operation. This was in a public institution, and the operation was performed without due consultation and without, I am convinced, proper knowledge of the disease upon the part of the surgeon. Why removal of the ovaries should have been done was and is a question of grave doubt, for there was nothing to excuse it except the antiquated theory that all diseases of this class in women are due to some derangement of the pelvic organs. The fact was lost sight of, although the woman had remained in the state for a considerable period. The facts that the cataleptoid rigidity and trance sometimes disappear almost spontaneously, that in this case the patient was well nourished and showed no lowering of the vital powers, and that there are several agreed-upon causes which might have been attacked were disregarded.

Since that time, while I have not had the opportunities possessed by many of my professional friends who have devoted themselves to the treatment of the diseases of women, I have nevertheless had a limited experience, and if the investigations of others who are more fortunate are proportionately anything like my own, the extent of the evil and uselessness of oophorectomy can not be too strongly condemned.

Besides the cases that have fallen under my observation, I have learned from reliable sources the histories of others.

A familiar disease for the supposed relief of which the operation is performed is epilepsy, and the clinical features of this affection have been perhaps more often disregarded than any other. A few years ago I examined a lady with reference to a long-existing epilepsy which had defied the most approved treatment. Her attacks were severe, were attended by a variable loss of consciousness, she had bitten her tongue, and there was some slight mental degeneration as well as diplopia, and the convulsions were, as a rule, dominantly *unilateral*. In fact, all the features of the disease and the seizures showed it to be conclusively a case of cortical epilepsy with two probable lesions. The medical

gentleman who brought her to me said that the patient and her family were anxious to have her ovaries removed, but I frankly expressed my disapproval of such an operation. It was argued that the attacks were more numerous at the menstrual period, and this was alleged to be an indication that there was some local cause. Despite my objections, oophorectomy was determined upon and the patient etherized. During the administration of the ether she had a convulsion, and, though the operation was most skillfully performed, there seemed afterward to be no amelioration of her condition, let alone a cure, and she died a year or two later. Unfortunately, a post-mortem examination was not obtained, but there can be little doubt but that it would have shown some coarse cerebral lesions.

In cases which I have known, considerable emphasis has been laid upon the fact which is an accepted one in nearly all cases of this disease in women—viz., that the fits are aggravated periodically. But I do not think that this can have any weight, nor should the circumstance that disordered menstruation, which most often occurs under the form of amenorrhœa, points of necessity to ovarian disease. Before oophorectomy is thought of, most of these patients have been saturated with the bromides, and are nearly always exceedingly anæmic. Then, again, I think it is the experience of all neurologists that the menstrual function is influenced in the most eccentric way by the disease. In other cases the mental feebleness and weakness of will results in the loss of sexual restraint, which is so common with idiots and the epileptic insane that the one-sided observer is quite apt to ascribe these manifestations to exaltation of local sensibility. The instances where the operation has been performed in which epilepsy existed in a quasi-hysterical form appear to have been those which have not had the benefit of systematic moral treatment, and in one case there was a temporary impairment I believe due to the mental impression, but the patient in other ways has remained as perverse and troublesome as before the surgical measures were employed.

To those of us who are familiar with the genesis of insane delusions and the conduct of the insane themselves, there can be little doubt of the exaggeration and false interpretation of local hyperæsthetic disorders. Evolution of erotic delusions is a complex process, and occurs in women whose primary derangement is of a perfectly pure and sometimes religious nature. So far as my own experience has gone, especially in melancholia, there has been a period in which introspection, self-depreciation, and morbid religious fancies have for some time preceded the erotic concepts, the resulting impulses, and the indulgence in actions which to the casual or superficial observer would indicate peripheral genital excitability as the solution of the problem, and would impel the unthinking physician to primarily operate.

The importance of detecting and properly estimating the value of a primary mental disturbance which results in sexual perversion can not be too strongly insisted upon, for this is universal, and these states, familiar to the alienist, are found in both men and women, sometimes without any local excitability whatever.

I do not think the operation is permissible in any case

of insanity. It is certainly not warranted where the insane manifestations have become chronic or typical, and where physical evidences of cerebral degeneration have made their appearance, and with this in mind I was exceedingly surprised a few months ago to hear that the ovaries had been removed from a patient I had seen, the history being the following:

She was a young woman between twenty and thirty years of age, whose mental disorder had lasted at least ten years and had defied the most skillful treatment which had been directed in asylums abroad and in this country. She was of a well-established insane stock, her mother and several members of her family upon the maternal side having presented more or less marked evidences of insanity. The patient herself exhibited the symptoms of dementia secondary to chronic mania, and it was one of the clearest cases I ever saw. She was exceedingly violent, destructive, homicidal, and suicidal, and her erotic aberration was in comparison an insignificant feature of her disease. I saw her upon several occasions, and at the last visit she certainly had entered upon secondary dementia, and, besides ophthalmata and the well-marked facial and cutaneous characteristics, there was mental involution which would have impressed any one with the least experience in mental disease that the last and degenerative stage of her disease had been reached. Notwithstanding this condition of affairs, it was thought advisable to perform oophorectomy, which was done with fatal consequences; but had the patient lived there is not the least doubt but that her confirmed insanity would have advanced to the only possible termination in spite of this entirely unnecessary and ill-judged operation.

I am cognizant of other cases where the operation has been done, the subjects being the victims of degenerative insanity, and where not the slightest benefit resulted from the ablation of the organs which are supposed to play so prominent a part in the mental disturbance.

In a certain number of these cases there is resulting insanity in about nine per cent., which, however, is not more than follows other great operations of this kind; and, so far as I can learn, those that are essentially traumatic cases recover quickly. Sometimes the operation, when performed upon neurasthenic women with an underlying insane diathesis, through shock is apt to develop a mental disorder which may be more or less permanent.

I think the great principle is lost sight of that hysteria is essentially a psychosis, and is as much due to primary neurotic inheritance, environment, and education as to anything else. Physicians of strong personality and tact, as is well known, do more through mental therapeutics than by any other more material remedy, and in making this assertion I simply reiterate something which has been said over and over again, but has been neglected by those who have an all-abounding faith in drugs and the knife.

The rapid advances that have been made in the past few years by Janet, Richet, Bernheim, Myers, James, and others, both therapeutically and experimentally, show that we possess in suggestion a means that is to revolutionize the treatment of many psychoses.

Where oophorectomy has done good in functional cases I am strongly convinced that it has been through the profound impression upon the mind of the subject rather than

upon the removal of the ovaries, and in two or three cases I have been made fully aware of this, not only in the cure of imaginary troubles, but in the relief of the psychical disturbance, in one case leaving all the other neurotic symptoms as they were before the operation. Much of the credit that has been claimed by operating gynecologists results largely from this mental reformation, leading the patients to exaggerate their improvement and to magnify the weight of the burden they had previously borne, just as before the laparotomy they had gone to the other extreme in indulging in the luxury of despair.

The curious psychical results that I have witnessed in patients who have undergone the operation have been of intense interest, although I have not encountered any of those extreme departures from the feminine type, either mental or physical, that have been described or are the subject of speculation. In one case, that of a married woman, all the longings for maternity, which had not been known before, were brought to the surface, and there was a condition of dejection approaching melancholia and a disinclination to go into society. This, I understand from some medical friends, is by no means uncommon. The absence of alteration in disposition of a material character rather suggests the feeble influence of these organs upon the mental and moral processes as a direct connection, though my friend Dr. Polk tells me that he has witnessed a dullness and torpor, as well as a certain physical coarseness, but this I have not known. In many cases after the operation there is apt to be prolonged mental distress, which comes with the realization that in one way the woman is unsexed forever.

Most writers upon medical jurisprudence have given much space to the discussion of the results which follow a corresponding operation in the male, and Ogston, whose opinion is as high as any, maintains the position that while the operation before puberty effects a material change in the mental and physical condition of the young male, no such result follows the deprivation at a later period. He, however, agrees with Devergie that there may be rare exceptions. These organs in the female, which are supposed to play so important a part in development, can not, I think, be for a moment compared with the thyroid glands, which, when removed or diseased, very often effect a general and very striking alteration in the appearance and behavior of the subject, suggestive of a general involution.

Dr. T. Addis Emmet, who has been so kind as to give me the benefit of his experience, does not believe that the removal of these organs has any other permanent effect than that which generally takes place after the menopause, and the change in appearance is not always a rapid one.

It can not be denied that the temptation to use the knife in these cases is very strong, and, even though the gynecological surgeon may have doubts of the appropriateness of the treatment, he is urged by the despondent and desperate friends of the patient, who have received little hope either from previous neurological treatment or the prognosis given by well-informed physicians.

What the medico-legal complications are that may arise in the future from the wholesale unsexing of women that has gone on in recent years it is difficult to predict, and

how much it will enter into the dissolution or formation of marriage contracts and other legal agreements no one can say. I have already heard of one case of separation that has taken place, and doubtless there are others that are unknown. The operator should, therefore, not only be careful in the selection of his subjects, but should make a perfectly clear statement of the possible results of his surgical treatment.

In conclusion, I may recapitulate by expressing my objections to the operation in any case of typical or systemic nervous disease where there are objective evidences of degeneration or coarse disease, and it is only to be thought of where all other means of mental therapeutics have failed, and only then as a form of suggestive treatment, and in a small number of cases where menorrhagia results in the malnutrition of the nervous system, such menorrhagia being intractable and not due to any accessible disease. There is no doubt but what the most conservative gynecologists have discarded the operation almost entirely. In response to a question I propounded to one of the most learned and consistent specialists in women's diseases in America—viz., "In what proportion of cases does this operation cure nervous diseases, so far as you know?"—he replied: "I never remove the ovaries for nervous disorders, as I believe the fault to lie in such cases in the nerve centers." This terse answer virtually voices the sentiments of the advanced and most careful surgeons.

## THE TREATMENT OF POST-PARTUM HÆMORRHAGE.\*

By ROBERT A. MURRAY, M.D.

I KNOW of no accident in obstetrics so fraught with anxiety to the accoucheur, so appalling in its effects on a household, casting it into sudden darkness, where before was joyous expectancy, as fatal post-partum hæmorrhage.

The suddenness of the emergency; the necessity of meeting it single-handed, oftentimes at night, with few capable assistants; the many causes that may be operative, and therefore to be combated; and the quickly fatal result if remedial measures are not effective—all these require that the subject should be studied frequently, so that a knowledge of the resources of his art may make the accoucheur cool, prompt, and decisive in his efforts. Success, however, is not attained solely by familiarity with the procedures ordinarily advocated, but by a thorough appreciation of the mechanism by which the hæmorrhage is to be arrested.

Post-partum hæmorrhage is usually due to mismanagement of the third stage of labor—that is, the lack of contraction and retraction of the uterus. To this may be added all causes predisposing to this condition. Contractions of the uterus, or pains, cause the uterus to become smaller and force the fetus from the uterus into the vaginal canal and into the world; but these contractions are intermittent, paroxysmal, and followed by relaxation. If it were not for

the retraction of the uterus, its contents would not be compressed during labor, its volume gradually reduced as the fetus and placenta were expelled, and the organ left in a tonic state, which prevents relaxation.

In this tonic state of retraction the flow of blood from the uterine sinuses is controlled not only by the contraction of the muscular fibers of the uterus, but also by the formation of thrombi in the open mouths of the veins. So that the contracted uterus is hard like a billiard ball and is temporary, while retraction should be permanent, and the organ is relatively relaxed. Retraction is important during labor, for if the uterus does not follow its contents down, the interval between the contractions, through relaxation of the uterus, may cause partial detachment of the placenta; this, combined with fatty and other degenerative changes of the placenta, has seemed to me the explanation of the sudden effusions of blood into the uterus with large distention and loss of contractility of the organs, collapse, shock, and fatal result, as described in some cases of ante-partum hæmorrhage. Contractility of the uterus may be hindered by the thinning of the walls by overdistention, as in twin cases, hydramnion, by general debility, prolonged exhaustive labors, forceps or other operative deliveries, multipare, too rapid emptying of the uterus, full bladder, and in some cases by prolonged pressure on the œdematous lower segment of the cervix.

Retractility, besides the causes enumerated above—for a deficiency in contractility is the most frequent cause—has also for cause the retention of coagula, portions of placenta, and shock from labor.

Other causes of post-partum hæmorrhage are injuries to the soft parts, lacerations of the cervix, vagina, vulva, and perinæum; to these and their treatment I wish to draw particular attention. Syphilis, albuminuria, and a short funis have in some instances, in my experience, been causes—the first two, no doubt, by premature separation of the placenta.

With this short review of the causes we pass to the treatment of post-partum hæmorrhage.

It is wise, on being called to a parturient case, to provide yourself immediately with means to prevent any occurrence of hæmorrhage. Ice, ergot, hot and cold water, some antiseptic, a Davidson or fountain syringe, Monsell's solution of iron, and a bed-pan should be near at hand. Follow the uterus down with the hand as the fetus is expelled, and while attending to the child have the womb held either by the nurse or the patient. Wait till the patient has recovered from the shock of labor before expressing the placenta. The too early application of Credé's method, I believe, often causes hæmorrhage by not allowing for recovery of nerve force to retain the uterus retracted. Be very sure that placenta and membranes are thoroughly expelled. If hæmorrhage does come on, the uterus should be grasped by the hand spread over the fundus and a downward pressure in the axis of the pelvis maintained while the body of the organ is kneaded. Contractions not supervening, the fingers of the other hand are introduced into the cervix, clots expelled, and the womb is anteverted and pressed forward on the pubis by the external hand, and at the same time the aorta may be compressed. Pieces of ice may also

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be passed along the hand into the cavity of the womb and ice applied externally.

A measure introduced by the late Professor I. E. Taylor of flagellation of the abdomen by a towel wrung out of cold water is often effectual. The hand introduced into the uterus and the organ compressed between it and the external hand is a powerful stimulant to contraction, and, if not altogether effectual, allows of cleaning the uterus of placenta, clots, etc., and affords time to obtain hot douche, tampon, or other measures.

The hot douche of one per cent. creolin, temperature 115° F., is next to be tried, and is very powerfully effective. To it may be added tincture of iodine for its stimulant and astringent effects on the endometrium. The perchloride or persulphate of iron, as recommended by Barnes, or its application on swabs, I think unfavorably of, for the clots formed stop up the cervix, and the thrombi formed in the veins are prone to decomposition and may extend to the iliacs or pulmonary veins with fatal effects.

A sliced lemon has proved useful as an astringent, as suggested by Dr. Wallace.

The use of the tampon made of iodoform gauze, as recommended by Stahele in Germany, and by Grandin, Polk, and others in this country, is certainly the greatest advance lately made in the treatment of post-partum hæmorrhage. Especially is it useful in atony of the uterus, and where the uterus is prevented contracting by the presence of fibroids or other tumors; in lacerations of the cervix and vagina it has been recommended, though, as I shall state hereafter, I believe it far better practice to treat these lacerations surgically.

At the same time while these measures are employed, the patient's head should be lowered, the feet and pelvis elevated, the blood supply to the heart maintained by manual compression of the arteries to the arms and lower limbs, and by pressure on the aorta by the hand of the obstetrician. Hypodermics of ergot, brandy, and ammonia may be used to rouse the patient and to increase the amount of circulating fluid. Saline solutions should be injected in the rectum and in the subcutaneous tissue by the use of the hypodermic needle attached to the tube of the fountain syringe.

Cerebral anæmia, with its restlessness, jactitations, yawning, and even convulsions, should be treated by the use of opium, morphine hypodermically, and tincture of digitalis. As large an amount of liquid nourishment as possible should also be given by mouth to fill the blood-vessels.

I am convinced, however, that many cases of post-partum hæmorrhage are not due to non-contraction of the uterus, but are frequently due to lacerations of the cervix, vagina, or external genitals, and proceed to grave results, while these measures before stated are unsuccessfully tried. I would therefore insist that as soon as the hand is placed on the uterus externally, the other, rendered aseptic, should always be introduced into the vagina after careful inspection of the external genitals, and the cervix and fornix vaginae be examined carefully for lacerations.

This is not so easy as it would seem, since the cervix is soft and flabby; but, by grasping the anterior and posterior

lips, the lacerations at the sides, front, or back will be easily appreciated. At the same time this constitutes the proper immediate treatment, since the pressure of the fingers closes the bleeding points, and the lips can readily be pulled down to the vulva, when the tear will be clearly seen, as the fundus, being contracted, traction on the cervix arrests bleeding in the puerperal as in the non-puerperal uterus—an expedient in every-day use in gynecological practice. If the bleeding be arrested by this means, grasping the cervix with a clamp forceps enables one of very moderate surgical skill to pass a silver wire suture, twist it, control the bleeding, and at the same time repair the lesion. This procedure I advocated some years ago in a paper before the obstetric section of the Academy of Medicine, and it was also advocated before the same section in a paper by Dr. Dickinson, of Brooklyn, last year.

That the statement I make is not theoretical is shown by the frequent lacerations of the cervix that come to the specialist; and in ascertaining the histories of many cases, they have remembered that they lost a great deal of blood in labor and had a protracted convalescence. I shall present succinctly three cases which occurred in the New York Maternity, during the past two months, of severe flooding post partum, one of them terminating fatally, where the cause was laceration of the cervix:

CASE I.—Annie B., aged nineteen, single, Austria; admitted August 12, 1892. Primipara, pelvis normal. Labor in first stage complete, October 10th, 1.30 A. M., in seven hours and thirty minutes; second stage, 2.15 A. M., forty-five minutes; third stage, 2.30 A. M., fifteen minutes; whole duration, eight hours and thirty minutes.

The child weighed seven pounds and nine ounces; head presentation, left occipito-anterior. After delivery of placenta, hæmorrhage, lacerations of vulva and vagina were observed, but the bleeding did not proceed from these. Hot vaginal and uterine douches of creolin (one per cent.) had no effect; the uterus was then tamponed with iodoform gauze, ergot was given subcutaneously, and ice was used. These controlled the uterus but slightly. After packing the uterus, the oozing continued for three hours, then ceased; bed was raised, stimulants and heat applied, and patient revived.

Eight hours afterward I removed the gauze; oozing came on, but from the uterus; the gauze was replaced after examination had shown that the primary bleeding had been from the lacerated cervix; gauze removed in twenty-four hours; no sepsis; patient recovered.

CASE II.—Alice H., aged twenty-five, United States; admitted October 13, 1892. Pelvis normal. Labor began October 13, 1892, at 6.30 P. M. Membranes ruptured the day before.

The first stage was complete, October 14th, at 2.45 A. M., in eight hours and fifteen minutes; the second stage at 3 A. M., after fifteen minutes; the third stage at 3.15 A. M., after fifteen minutes; total duration, eight hours and forty-five minutes.

The pains were good, the labor was normal; ergot was given on delivery of the head. The placenta was expelled by Credé's method in fifteen minutes, and was at once followed by spouting hæmorrhage. A large swelling, afterward recognized as the œdematous anterior lip, was felt at the vulvar orifice. This had not been observed during examination in the course of the labor, though a large tab on the anterior lip from previous lacerations had been noticed on entry into hospital. A vaginal creolin douche was given, followed by temporary cessation of bleed-

ing; on its recurrence, specular examination was made, but no bleeding point found.

A hot uterine creolin douche was then given, about two hours after labor, as ice was ineffectual, and iodoform gauze was used to pack the uterus and vagina, which arrested the bleeding. The patient revived under stimulants, and when the packing was removed in twenty-four hours there was no recurrence of the flow. A marked recent laceration on the right side was observed and an old one on the left, leaving the anterior lip projecting as a bluish oedematous tumor.

No sepsis occurred and the patient had a normal convalescence.

CASE III.—Norah McQ., aged twenty-one, Ireland, single. Primipara, pelvis normal. Labor began October 17, 1892, at 6 A. M., left occipito-anterior. Duration of first stage, four hours and five minutes; second stage, two hours; third stage, twenty minutes; total, six hours and twenty-five minutes.

Labor normal till head rested on perineum, when all advancement ceased; low forceps used after two hours' waiting and child delivered. Ten minutes before delivery of placenta a slight bleeding. Credé's method tried, but unavailing; as the hemorrhage was more sharp, the hand was introduced and hour-glass contraction and adherent placenta found. Placenta was detached and hot intra-uterine douche (1 to 8,000) given immediately without effect on bleeding.

Speculum showed no bleeding points; iodoform tampon was applied at once, as patient became quickly collapsed, eighteen yards of four-inch-wide gauze being used; pressure on fundus and also on gauze packing below being maintained.

The patient was now in collapse; pulse, 130 to 140, pale and feeble; was stimulated with brandy and ether; arteries to the limbs compressed by bandages; head lowered and feet elevated; normal salt solution to extent of twenty ounces given subcutaneously, and also injected into cephalic veins, and the faradaic battery used to stimulate the heart and respiration, but the patient sank rapidly and died at 4.40 P. M., four hours after delivery.

I was called to the case, but when seen the patient's condition was hopeless.

After death the gauze was removed and the cause was immediately apparent in a large laceration of the cervix to the right from the os up to vaginal junction. The specimen was removed and showed the tear higher internally than on the exterior of the os. The placenta was markedly calcareous in nodules, and had been thoroughly removed. A few slight lacerations were seen in the vagina.

It was the opinion of the curator, as well as of each one who saw the case, that the sudden flow rather than the amount lost was the cause of the fatal collapse.

I shall not add any more cases, as they may be consulted in my former paper, but shall discuss briefly those presented.

In each of these cases there must have been undue pressure exerted on the anterior lip, though it was unrecognized by even an experienced attendant, which emphasizes the necessity of examinations made at the time of the pains, and also the treatment to push up the anterior lip gently between the pains, that the head may descend without opposition.

I executed this little manœuvre in a case which had been almost a day in labor, the cause not being determined, with the gratifying result of terminating the confinement in half an hour, at the same time showing the house surgeon how cervical lacerations are often caused.

Two of these patients were multiparae, and they more frequently have hæmorrhage. May it not be due to the extension of former lacerations by the fixation of tabs of the cervix against the symphysis?

In all the cases the douche, vaginal and uterine, was used; heat, cold, ergot, and, finally, the tampon, after specular examination showed no bleeding point. The speculum as a means of diagnosis or treatment is useless and unnecessary, for the constant flow of blood from the flabby cervical tissue precludes vision, and the cervix can be grasped with the thumb and fingers of the hand and readily pulled down to the vulva, the traction and pressure arresting hæmorrhage and enabling the part to be properly and quickly sutured.

The speculum also makes a very hurtful pressure on the bruised perineum, which extends slight lacerations and may cause hæmorrhage from small thrombi and tears. I am in favor of the use of the hot douche, but it is not always available, with glass tube and bed-pan, as in hospital practice, and it necessitates lifting and changing the position of the patient, and though effectual in producing contraction of the uterus, it will not stop bleeding from the circular artery.

The tampon has lately come into vogue, and it is a remedy of the greatest value. When, however, the bleeding is from the cervix, it is not as quickly applied, nor is it as sure as the suture; the hand has to be introduced into the vagina, and very great care must be employed to prevent extension of the lacerations in pushing the tampon into the womb; again, it is not always thoroughly aseptic when hastily used in a bed deluged with blood, meconium, liquor amnii, etc. If, however, it is used, it must be thorough, for the loss of very little blood in oozing may be sufficient to cause a fatal result.

A very great advantage of the surgical treatment of the cervical lacerations at the time of labor is that the involution of the uterus proceeds normally, and the frequent subsequent hæmorrhages from subinvolutions are prevented, as also the long train of chronic troubles so well described by Dr. Emmet. I am not at all convinced that the statement that most lacerations of the cervix heal up if kept scrupulously clean is true, for if it were there would not be the large number presenting from the well-to-do classes to have the secondary operation done.

The lacerations in the vagina, vulva, and perineum should always, when possible, be sutured, that the involution of these parts may go on *pari passu* with that of the uterus, and also to avoid the great danger of sepsis.

The patient should, after labor, be left in a perfect physiological condition, to take care of her offspring and bear the burdens of life—the sole end of a physician's attendance not being the birth of a live child without losing the parent.

235 WEST TWENTY-THIRD STREET.

**The Buffalo Academy of Medicine.**—At the recent annual meeting of the Section in Surgery Dr. George F. Colt read a paper entitled *Some Remarks on Intubation*, and officers for the ensuing year were elected as follows: President, Dr. Herman E. Hayd; vice-president, Dr. Marcell Hartwig; secretary and treasurer, Dr. William G. King.

CYLINDROIDS OR SO-CALLED MUCOUS CASTS  
IN THE URINE.\*

By MORRIS MANGES, A. M., M. D.,

PHYSICIAN TO OUTDOOR DEPARTMENT, MOÏST SINAI HOSPITAL, NEW YORK.

ALTHOUGH earlier writers had not infrequently called attention to bodies in the urine whose form resembled that of renal casts, yet it was not till 1870 that Thomas (1), while observing the urine in scarlet fever, carefully studied the forms to which he gave the name cylindroids. This name he applied not alone on account of their resemblance to true casts, but because they so frequently occurred with the latter, and also reacted in a similar manner toward acetic acid. Rovidá (2) carefully analyzed them chemically and showed the identity of their composition with that of renal casts. They were mentioned by Bartels (3) and Wagner (4). Bizzozero (5), Eichhorst (6), Neubauer and Vogel (7), von Jaksch (8), Fürbringer (9), Leube (10), and Rosenstein (11) also described them. The most exhaustive study on this subject was made by von Török and Polak (12) in a prize essay entitled *Ueber die Entstehung der homogenen Harncylinder und Cylindroids*.

Most of these writers agree, in some measure at least, in recognizing cylindroids as renal products bearing a more or less close resemblance to hyaline casts. Other authors regard them only as forms of mucin. Thus Baginsky (13) spoke of them as hyaline mucous shreds, which may be found in the urine of scarlet-fever patients. Tyson (14) states that occasionally casts may be found which are apparently "pure mucus-molds of the uriferous tubules." These forms, in his opinion, undoubtedly come from the kidney and must be distinguished from the bands of mucin which are found in hyperacid urines.

Millard (15), in his treatise on Bright's disease, in which he has so carefully and thoroughly distinguished the relations of mucin to albuminuria, speaks of mucous casts, but denies that they have any significance except that they are often mistaken for hyaline casts. The mucous cast, as distinguished from true casts, he maintains, is not an inflammatory product. Vierordt (16), while describing mucin, says: "Several forms are characteristic; among these are cylindroids, or microscopic shreds of mucus which careless observers may mistake for casts. Their origin and diagnostic significance are uncertain; they may be found (accompanying casts) in nephritis, in cystitis, and even in healthy individuals."

Peyer (17) also considers them products of mucus. He gives excellent plates (see Plates 6, 32, and 64) showing various varieties, including prostatic and spermatic cylinders. Saundby (18) coincides with the above views and simply speaks of them as mucous cylinders.

Von Hösslin (19), in 1889, described an unusual form of casts which he found in the urine of an epileptic after a very severe renal colic which lasted eighteen hours. The urine passed after the attack had a specific gravity of 1.035 and was laden with urates. With the naked eye

numerous flakes could be seen floating in the urine. Under the microscope these were found to consist of sharply contoured hyaline casts, branching dichotomously, and between which were finely granular uratic deposits. As the urine was free from albumin, von Hösslin believed that these casts could not consist of any albuminoid substance. Inasmuch as mucin is increased in quantity in renal colic, he therefore asserted that in this case the secretion of mucin was so great that mucin casts were formed in the kidney. The fact that he could never find casts after any of the epileptic attacks which the patient subsequently had, excludes the possibility of including them under this latter group.

In a paper on Tube Casts and their Diagnostic Value, read before this year's meeting of the Association of American Physicians, Danforth (20) divides these bodies (*i. e.*, casts) into two groups, of which one includes the ordinary forms, the other being the mucin casts. These, he states, are "the characteristic morphologic products of catarrhal nephritis and establish its differential diagnosis."

Cylindroids have also been variously mentioned as prostatic cylinders or tubules, spermatic casts, etc. On the other hand, very many recognized standard text-books do not even mention them.\*

*Description.*—Cylindroids are ribbon-like forms, usually of great length and of about the same diameter as renal casts. They may assume various shapes, due to bends and twists which are usually in their longitudinal axis, giving them a corkscrew appearance. These axial twists are most frequently observed near the extremities. Folds and lateral indentations are very common. The diameter may be uniform or varying; the latter is by far more common. Hence, as a rule, the extremities are narrow and elongated, and often bifurcated. Subdivision into three or even four branches is by no means rare. They are frequently thicker at one end than at the other. Their outlines are delicate, although more highly refracting than hyaline casts. A very characteristic feature is the longitudinal situation of various grades of delicacy; these markings not alone assist us in finding them, but are also a very important diagnostic feature which distinguishes them from true cylinders.

They may occur isolated or in groups of two or three, or even in large snarls; the latter may often be detected by following up one extremity of the cylindroid (Fig. 1). Not infrequently a specimen is at once cast and cylindroid, as where one end of a cast terminates in a spiral, striated form (Fig. 2). I have observed both extremities assume this form. One example which I saw of this variety had a body like a granular cast (probably due to some extra-



FIG. 1.—Snarl of interlacing cylindroids. (Low power.) From Bizzozero.

\* Da Costa's paper in the *American Journal of the Medical Sciences* for January, 1896, is an excellent proof of this assertion. Although very careful chemical and microscopical examinations of the urine were made in all his cases, yet cylindroids are never referred to. This is all the more striking since nowhere else do these bodies occur more frequently.

\* Read before the Section in Genito-urinary Surgery of the New York Academy of Medicine, December 8, 1892.



neous precipitation); in still another example this granular appearance was present in two portions of the specimen,

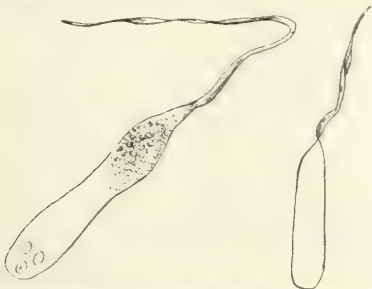


FIG. 2.—Combined casts and cylindroids. ( $\times 400$ .) The specimen to the left was found in an acid urine (drawn by catheter) containing much free uric acid. The specific gravity was 1.030. Albumin and mucin were present in traces, with sugar 0.4 per cent. It contained three renal epithelial cells and numerous small fat globules. Hyaline and fatty casts also were present. The other specimen also is from a gouty urine, very acid, of the specific gravity of 1.032, containing many crystals of uric acid and oxalate of calcium, together with hyaline and granular casts.

the intervening space being quite hyaline, while the extremities were typically cylindroidal (Fig. 3). Finally, cylindroids may occur inclosed in hyaline casts, as is well shown in Fig. 4.



FIG. 3.—False cylindroid with deposit of amorphous urates. From a case of oxaluria; urine was very acid, specific gravity 1.028; contained urethral shreds, hyaline casts, and a small number of red and white blood-cells. A large trace of albumin and mucin also present. ( $\times 400$ .)

Like true casts, cylindroids may bear various forms of epithelium, red and white blood-cells, crystals, detritus, fat-droplets, and bacteria. These may be inclosed within or may simply be adherent. When covered with amorphous deposits they may strongly resemble granular casts.

Their length is characteristic. According to Bizzozero (5) (*loc. cit.*, p. 281), they may even be one millimetre long. It is common to see them

extend over two, three, or even five fields of the microscope. The diameter of the thin forms (Bizzozero) is 1 to 2  $\mu$ ; the broader varieties measure between 5 and 10  $\mu$ . False cylindroids may be much broader than this.

**Classification.**—The classification of these bodies into two great groups—the true and false cylindroids—is of importance, not alone in estimating their diagnostic significance, but also in explaining the differences of opinions held by various writers on this subject. That some cylindroids are renal in origin is positively shown by the fact that von Török and Pollak (12) have actually seen them in the uriniferous tubules in sections of a large white kidney, of a waxy kidney, and numerous cases of chronic parenchymatous nephritis. Furthermore, they were also

found in the kidneys of rabbits poisoned with cantharides and bichromate of potassium; in experimental stenosis of the renal veins; in ligation of the renal arteries; and also where the ureters were tied off (Fig. 5). Another very strong proof that cylindroids are formed in the kidneys is shown in the curious casts inclosing cylindroids (Fig. 4). As von Török and Pollak observe, unless we accept the view that the cylindroid already existed in the tubule where it was subsequently inclosed in a mantle of albuminoid material, we must assume that the cylindroid forced its way into the already formed cast. For this, however, it is not rigid enough, as any pressure from behind would simply press the spirals of the cylindroid closer together. The alternation of casts and cylindroids, their occurrence in the same



FIG. 4.—A hyaline cast containing a cylindroid. From a case of Bright's disease. (Von Török and Pollak.)

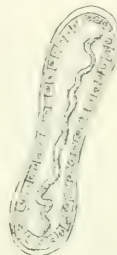


FIG. 5.—Sections of uriniferous tubules containing cylindroids. The specimen at the left was from the kidney of a rabbit in which the renal veins had been narrowed. The one at the right is from the kidney of a rabbit poisoned with cantharides. (Von Török and Pollak.)

specimen in which they both contain exactly the same varieties of epithelial cells, blood-cells, detritus, etc., the similarity of their reactions to various chemical reagents—all these attest the correctness of this view. Finally, I have also seen them in urine drawn with the catheter in cases where there was absolutely no indication of pyelitis and cystitis (Fig. 6).

On the other hand, it is just as certain that others are formed outside of the kidneys. They may be readily observed in the secretions of the prostate, Cowper's and Litre's glands, the bladder, vagina, uterus, and urethra. They may also be seen in the urine voided *post coitum*, or after a hard passage, or after what Keyes has termed "milking the prostate." If any of the above secretions be mingled with perfectly normal urine, cylindroids may then be observed in the specimen (Figs. 7, 8, and 9).

Renal cylindroids have been subdivided into three groups: (a) small, narrow threads; (b) ribbon-like bodies; (c) collapsed tubules. Von Török and Pollak also mention another variety where the contours are very vague. This classification referring only to the shape has no practical significance.

*Composition.*—The exact composition of casts being unknown, a corresponding degree of uncertainty must necessarily exist concerning the nature of the basement substance

above, true and false cylindroids react differently to acetic acid, the former being rapidly dissolved, while of the latter some are unaffected, but others are swollen up and apparently disappear; however, they again become visible after staining.

This effectually disposes of the belief of many who have regarded *all* cylindroids as being simply shreds of mucus. Even admitting that renal cylindroids could consist of mucin, from what part of the kidney could the necessary mucin be obtained? The only rational source would be the pelvis; but in that case they would have a much less marked resemblance to true casts than they actually possess. Whatever cylindroids are formed there undoubtedly belong to the false variety. Mucus can not be secreted within the kidney, for it contains no muciparous glands. Millard and Danforth still adhere to the possibility of a catarrhal nephritis. The latter writer assumes that the necessary mucin is furnished by the tubal epithelium, most likely by that of the convoluted tubules. He maintains that, "under certain circumstances, the epithelial cells seem to undergo a change which is equivalent to the 'mucoid degeneration' of Ziegler, the protoplasm of the cell being transformed into a mucoid substance,

which is afterward cast into the lumen of the tubule, there to aggregate itself with the similar product of neighboring cells." Such views of pathology may be dismissed as antiquated, for very few writers any longer



FIG. 6.—Renal cylindroids from a case of typhus fever. Urine contained small trace of albumin, red blood-cells, hyaline and epithelial casts. Cylindroids were soluble in acetic acid. A few adherent red blood-cells in one of the specimens. Urine was high-colored, acid; specific gravity, 1.028. ( $\times 400$ .)

of cylindroids. Of casts, Knoll (21) says that their substance is identical with none of the known forms of albumin—as acid albumin, albumin, albumose, globulin, fibrin, mucin, or peptone. Rovida (2), who has paid more attention to this subject than any one else, claimed that casts and



FIG. 7.—False cylindroids from a case of gonorrhea and cystitis. Urine acid; specific gravity, 1.019; faint trace of albumin, large trace of mucin; free uric acid crystals very abundant. Epithelial cells of bladder and pus cells quite abundant. ( $\times 400$ .)

cylindroids were identical in composition. This is true if pseudo-cylindroids are not included; for, as already shown



FIG. 8.—Very long false cylindroid containing blood-cells. Both extremities bifurcated. From concentrated acid urine with traces of albumin and mucin. ( $\times 400$ .)

speak of a catarrhal nephritis. The only other possible explanation would be that mucin, being now recognized as a nucleo-albumin, might arise from changes in the renal cells. However, if so marked a lesion were present, we would have other manifestations of a well-marked nephritis.

Thus we may assume that renal cylindroids consist of some as yet unknown albuminoid substance. On the other hand, pseudo-cylindroids are probably formed from some variety of mucin.



FIG. 9.—False (spermatic) cylindroids found in urine after passage of hard faeces. ( $\times 800$ .)

**Mode of Formation.**—Of the three theories put forth to explain how casts are formed—viz., (a) by the liquefaction and metamorphosis of desquamated renal epithelium; (b) from secretory products of renal epithelial cells, the so-called vacuoles; (c) the coagulation of an albuminous transudate into the tubules—only the latter comes into play when considering the origin of renal cylindroids. Their very form speaks for the correctness of this assumption, for according to the amount of the transudate will the cylindroid assume the shape either of a thin flat ribbon, or a hollow tube, or a solid cylinder. Originally the albuminous material is coagulated in straight lines; but the urine coming down from the glomerulus while they are still semi-solid, causes the various corkscrew twists, bends, and transverse folds. Their great length and the frequent occurrence of dichotomous division would seem to indicate that they are usually formed in the straight tubules, although it is true that the branching of their extremities might also be explained by a subsequent splitting.

This view will also readily explain the bodies which are cast and cylindroid combined, by assuming either that through some obstruction the transudate was forced to fill out the entire tubule at some point, or that, although its amount was enough to form a cast in some portions, it did not suffice at other parts. The occurrence of snarls of interlacing cylindroids does not weaken this assumption, for Thomas (23) asserts that they may be formed by the meeting in the calyces of the streams from the various collecting tubules.

The occurrence of cylindroids in tubules with unaltered epithelium indicates either the coagulation of transuded albuminous fluids, or that the specimen was carried down from some point higher up. But to discuss this subject at greater lengths would only bring us back to the consideration of all the various theories on the formation of hyaline casts.

Pseudo-cylindroids are simply bands of mucin precipitated in the excretory ducts of the various glands of the urinary tract by the acid reaction of the urine.

**Occurrence.**—It is surprising how frequently these forms may be observed in the urine after we have once learned to

recognize them. Where the urine has been mixed with various discharges—as in cystitis, leucorrhœa, or gonorrhœa, after coitus, after a hard passage, etc.—they may be readily discovered, as they are then quite abundant. They are also present in pyelitis, the various forms of nephritis, and congestion of the kidneys; consequently they are present in diphtheria, scarlet fever, and other exanthemata. I have even recently observed them in a case of typhus fever (see Fig. 6). They may occur alone or with casts, frequently alternating with the latter as the renal lesion abates in severity. These are least abundant in the chronic forms of nephritis. In normal urines they are by no means rare. Jaksch (8) (*loc. cit.*, p. 236) found cylindroids very frequently in the urine of children, with and without albumin, where renal disease could otherwise not be demonstrated. Among the non-albuminous urines they are especially liable to occur in jaundice, in concentrated and hyperacid specimens, and, finally, in subjects suffering from gouty manifestations and imperfect metabolism. It is just these cases which give us so much trouble in determining whether or no a trace of albumin might be present. These specimens are usually of a very high specific gravity (over 1.030), hyperacid, and contain a large quantity of urates; free crystals of uric acid and oxalate of lime are present when the urine is voided, or appear soon on standing. In these cases mucin is always present, often in considerable amounts. Hyaline casts, a moderate number of pus-cells, and at times even red blood-cells (where the pelvis of the kidney or other parts of the urinary tract have been irritated by sharp pointed crystals), are by no means rare in such specimens. Many of these cases are put back and often rejected by life-insurance companies.

False cylindroids have absolutely no relation to albuminaria, but appear to accompany mucinuria. The renal varieties may be present with or without albumin. *The trace of albumin which is so frequently present in these cases is often probably due to the excess of mucin which is so common in these patients.* However, Le Nobel (22) has always found globulin in urines containing cylindroids.

The youngest age at which I have observed them was five years—in a little girl with psoriasis; her family history was decidedly gouty.

**Diagnosis.**—For the purpose of studying the general characteristics of cylindroids, the urine of any patients suffering from gonorrhœa offers a good field, since the forms here present are very easily recognized on account of the distinctness of the longitudinal striation, their greater refracting power, and their length. Moderate powers (300 to 400 diameters) are ample. The delicacy of the contours of these bodies requires that the illumination be not too strong; they may be very easily overlooked when gaslight is used. Staining with Lugol's iodine solution, picric acid, etc., is always of assistance.

Cylindroids are most readily found in freshly voided urine, especially if the minute flakes which are often inclosed in the mucus be examined. These flakes are very hard to find if the urine has been shaken up. Another means of detecting them is to look for the snarls already referred to.



The differential diagnosis is important. The greatest difficulty will be encountered in distinguishing the true from the false forms. The only absolute test is the solubility of the former in acetic acid and the insolubility of the latter in the same reagent. However, the accuracy of this test is vitiated by the fact that some pseudo-cylindroids will swell up on the addition of this reagent and apparently disappear. Staining with Lugol's solution will, however, show that the specimen can still be rendered visible. However, to carry out this test successfully requires not a little skill in microscopic technique to constantly keep the particular specimen in the field of the microscope.

The presence of albumin, casts, and renal epithelial cells would lead us to expect the renal forms, while an excess of mucin, the admixture with products from the bladder, prostate, urethra, vagina, and uterus, would indicate pseudo-cylindroids. In the latter, also, the striations are coarser, the refractive power is greater, the diameter varies more, the extremities are more frequently divided into more than two branches—in a word, the less the resemblance to true casts, the greater the probability that we are dealing with pseudo-cylindroids. Naturally, the differentiation is materially aided by the presence of adventitious products—viz., spermatozoa, epithelium of the lower urinary tract, etc.

In spite of all these distinctions, the differentiation between these two groups will not infrequently be attended with the greatest difficulties; and in some cases it is even impossible, especially where both forms are present.

From casts cylindroids may readily be distinguished by their length, irregular contours, twists, and, above all, the longitudinal striations already referred to. Casts resemble a cylinder, while cylindroids are more band-like. Granular casts may be closely simulated where many of these characteristics have been obliterated by the presence of amorphous deposits. I have even seen true blood casts simulated by cylindroids bearing a large number of closely packed red blood-cells. In this connection it might be well for superficial observers to bear in mind how much renal casts differ from the usual typical drawings in most text-books, showing a cylinder with parallel sides and rounded extremities. Hyaline casts are quite frequently irregular in their contours, their sides often taper toward one extremity, bends are common, and Neubauer and Vogel even state (*loc. cit.*, ii. Theil, S. 155) that some may have bifurcated extremities.\*

I have already spoken of the forms which are at once cast and cylindroid—i. e., either the casts with spiral and tapering extremities, which are quite common, or the very rare forms in which cylindroids are inclosed in casts.

*Significance.*—Having thus shown the necessity of regarding these bodies as something more than mucous casts, and having also proved the existence of both true and false cylindroids, the question naturally arises, What is their significance and what prognostic conclusions may be drawn from them?

\* Examples of the very irregular outlines of casts may be seen in Basham, *On Dropsy connected with Diseases of the Kidney*, London, 1758, Plate IX.; Salkowski and Leube, *loc. cit.*, p. 444, Fig. 36; von Jaksch, *loc. cit.*, Figs. 78 and 81.

The pseudo-cylindroids, as such, may be dismissed without another word, as their significance is limited to simply recognizing them as such. Whatever bearings these forms have in diagnosis is merely due to the difficulty which may be encountered in absolutely distinguishing them from the true renal varieties.

Leube (10) (*loc. cit.*, p. 447) asserts that in his opinion there is no reason for specially distinguishing cylindroids from ordinary casts, especially as the latter so frequently have lateral indentations and axial twists. Rosenstein (11) (*loc. cit.*, p. 45) denies the right of attributing to cylindroids a special importance which renders their distinction from casts necessary. Fürbringer (9) (*loc. cit.*, p. 36) coincides with the latter.

Thomas (23) believes that where cylindroids are replaced by casts an exacerbation of the nephritis may be inferred; and, *vice versa*, cylindroids take the place of casts when the renal process abates. He also assumes that cylindroids are present where the quantity of albumin is very minute, and that they may even be the only signs of a mild nephritis. The latter may frequently be due to the excretion of infectious elements; in some cases the process resolves; in others it goes on to a nephritis. He suggests that bacterial influences may be discovered in many other cases where cylindroids occur.

The views of von Török and Pollak, Tyson, and others have already been stated.

Danforth, in addition to what has already been quoted of his contention that "mucin casts" establish the diagnosis of catarrhal nephritis, also maintains that these bodies are of great importance in the early recognition of interstitial nephritis.

My own belief is that if we can be absolutely sure that we are dealing with true renal cylindroids, their significance would be about the same as that of hyaline casts. But the value of such inferences is materially lessened by the great difficulties which often attend this differentiation. Not infrequently I have found it impossible. So experienced an observer as Peyer admits the same. Therefore, to attribute any absolutely diagnostic significance to cylindroids is not justified, as these doubtful cases usually occur where our other means of diagnosing nephritis also leave us in the lurch. Such a conclusion once more reminds us that a diagnosis of nephritis ought not to be made from an examination of the urine alone; but that all the other organs should be interrogated before making absolute statements as to the existence of renal disease.

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- 941 MADISON AVENUE.

### THE THIRD YEAR'S WORK AT THE CLINIC FOR DISEASES OF THE RECTUM IN THE NEW YORK POST-GRADUATE HOSPITAL.

By CHARLES B. KELSEY, M. D.

At the end of this, the third year's work of the clinic, it will perhaps be profitable to spend a short time reviewing some of the cases you have seen and the results of treatment.

I show you here, under ether, the young physician whose rectum I amputated several weeks ago. You will remember the case was one of non-malignant but extensive and incurable ulceration—incurable, I mean, by any topical applications or minor surgical operation.

The cause of the ulceration, which had completely destroyed the lower two inches of the gut, it was impossible to determine positively. He thought it might be syphilitic, but he had never had any other sign of syphilis, and the argument was evidently in his own mind from the effect back to a supposed necessary cause, and not *vice versa*. He had been operated upon years ago for fissure, but had not been cured; he had been curetted and cauterized without effect; he had taken mercurials without benefit, and all the time the ulceration of the rectum had been progressing. This sort of history, as you know, is common enough. Some slight lesion causes an abrasion of the rectum or anus; this, under one treatment or another, progresses and does not heal; operations are done and antisyphilitic treatment is prescribed without result; and finally the patient, after about five years of suffering, comes before us with more or less destruction of the rectal tissues and an unfounded diagnosis of syphilis.

This patient had absolutely no sign or history of syphilis. He had ulceration of the rectum as he might have been bald. It would be as sensible to accuse every bald man of syphilitic alopecia as to accuse this man of syphilis because he had ulceration of the rectum. However, the disease was incurable by local treatment, and you saw the operation of extirpation and amputation of the diseased portion of the gut.

I told you at the time that a colotomy would be attended by much less risk and would give as good an ultimate result, but that the patient preferred an anus without sphincteric power in the perinæum to one of the same sort in the left groin, and at a considerable risk of life we would give it to him. I therefore amputated about two inches and a half of the rectum, drew down the stump and stitched it to the anus, where the external sphincter had been carefully preserved.

The case has done badly from the time of the operation.

Had I done a colotomy the man would have been home at his work, as many of our other patients with the same trouble now are. But here he is. Two days after the operation his temperature was 105° F. We had no sooner brought this down than he had a severe hemorrhage from the wound, which left him in collapse. To stop this, all stitches were broken loose and the wound plugged. After lying between life and death for weeks he is now steadily improving, and I have brought him to the operating-room to try and overcome the faulty condition of the parts.

At the time of the operation great care was taken to preserve as much of the sphincters as possible, and the end of the bowel was carefully stitched to them. When the secondary hemorrhage occurred there was already some union of the surfaces, enough to have prevented what has happened, but this was necessarily broken down in packing the wound. The gut has retracted and now ends two inches from the perinæum. In the cavity thus formed solid feces are prone to become lodged, and as the skin incision heals their removal becomes more and more painful and difficult. This can be avoided by laxatives; but to avoid future stenosis I propose now to try and loosen the gut once more and bring it down to the skin.

The attempt is a failure. I can not loosen the bowel without practically doing another resection, so firmly has it become united to the tissues, and this would not be justifiable in his present exhausted condition. It will be much better for him to allow the parts to heal as they will, and to trust to healing over a bougie.

This is not an unusual result after resection. All cases are followed by more or less stenosis or incontinence, and there is never a very useful anus. So that the choice between colotomy and extirpation in these cases is more a choice of the place where an anus over which the patient will have no control shall be located than a choice between a useful anus and incontinence or stenosis. Colotomy, properly performed, is never followed by stenosis, but always by loss of control.

You see, then, the price this man has paid rather than have a colotomy. He has been very near death from an

operation which, in the best of cases, has a mortality of twenty per cent. rather than have a colotomy which would have been almost without risk, and how much he has gained in utility of the parts is very problematical.

One case of extirpation during the year was fatal—a case of cancer not very great in extent, but involving the neck of the bladder and part of the prostate. All the disease was removed, of course, and the bladder widely opened, and yet it seemed for several days as though he might recover, but he died on the tenth day from hiccough. It is probably the last case of cancer you will ever see removed at the clinic by me where the disease is not strictly limited to the gut itself.

In one other case you saw me abandon an attempt at extirpation of a non-malignant stricture because of a peculiar condition of the parts. The constriction was two inches from the anus, was very hard and tight, and could not be passed by the finger without incision. The gut being perfectly normal up to the stricture, I made the diagnosis of congenital malformation, and expected to resect the part and suture the ends. But after we came down upon the disease by Kraske's incision, I found two unexpected complications. One was that the gut above the constriction was enormously dilated. It was large enough easily to contain a fetal head. The other was that the stricture, instead of being limited to a small section of the gut, as I had supposed, extended farther up than I could reach.

It being impossible, therefore, to do what had been planned, the wound was closed and the patient left for a future colotomy. We might have excised, but the operation would have been very extensive, and it would have been impossible to have sutured the ends of the gut as I had hoped.

Of the seven colotomies, some have been of remarkable interest. Among others you have seen me lose my first patient whose death could be attributed directly to the operation, and that too from an accident which could easily have been avoided. I recall it to your minds both because of its interest and because no other such accident has ever been recorded.

It was a perfectly simple case of colotomy for cancer of the rectum in a man in good condition. I remember at the time of the operation the physician, who had brought us the case from a distance, leaned over the rail and asked me what the risk of the operation was, and I answered before you all that there was no risk; that in colotomies such as this the mortality was below one per cent.; and that the patient would be able to return home in about three weeks. In three days he was dead. He did well for forty-eight hours, when it was discovered that the dressing was wet through with serous discharge. This alone to an experienced dresser would have excited suspicion; but, as the attendant said, he had seen so many colotomies in this clinic, and all the patients get well without an accident, that he did not imagine anything could be wrong. This was in the evening. Next morning it was evident something had gone wrong. The patient was vomiting and partially collapsed, and all of the bowel that could get out

through a two-inch incision in the left inguinal region was out of the body and mixed up with the dressings. It took me an hour and a half to separate the bowel from the bichloride gauze by careful dissection, so firmly were they united by plastic exudation. Then the original incision was enlarged and the bowel returned, but the man died of shock.

And now I want to tell you that I have had in my own practice the same accident once before, but without fatal result, and with a surgeon's usual luck the two cases came within two weeks of each other; and that these two cases are the only ones on record. Other operators may have met with the same thing, but, if so, they have not cared to report it. If they were merely accidents without special bearing upon the operation, I also might not care to report them; but the accident, though always liable to happen after colotomy, can also always be guarded against when once its liability has been noted.

In my other case the evisceration was also marked by a sudden, unusual, and unaccountable gush of serum, which soaked the dressings twenty-four hours after the operation. In this case I accounted for the evisceration by the fact that there was considerable distention and obstruction at the time of the operation, but in the other case these conditions were absent. Fortunately, my assistant called soon after the bandages had become soaked, and, noticing that something unusual had happened, insisted upon removing them. Three or four feet of gut had escaped and were strangulated and cold; stitches were cut, the wire suture removed, circulation returned, and the bowel reduced. On my arrival the sigmoid was still in place, holding by the sutures on one side. It was at once incised to allow of the escape of gas and feces and to prevent further accident, and after this the gut was stitched to the edges of the wound by sutures passing through its entire thickness. The patient recovered without a bad symptom. The other one would probably also have recovered had the evisceration been discovered when it occurred.

What is the lesson from these two cases? Shall we always open the gut at the time of the operation instead of waiting forty-eight hours, as has been our custom? Or shall we suture the gut to the skin wound more firmly? Rather, I think, the latter. These two accidents have been due directly to the reports which I have heard and read of certain operations abroad where no sutures at all were used, a glass rod being passed through the mesentery of the gut, and kept in position by straps of plaster till the incision had been closed by plastic exudation. No accidents having been reported, I have gradually reduced the number of sutures in my own cases from twelve or fourteen to five or six—with the result of my first fatal case.

It may be noted that an accident exactly the opposite of this has been reported by Cripps. After one or two of his operations (in one I think even after the gut had been incised) the bowel tore loose from the wound, dropping into the abdomen, and had to be recovered. This, of course, could not happen with the silver suture which is passed through the mesentery in the cases operated upon here,



and I had supposed also that hernia was impossible—but *experientia docet*.

You saw an operation not long since in a phenomenal case of hæmorrhoids. The tumors were the largest I had ever seen. There was an enormous mass on each side of the anus, which had to be first cut into smaller sections before the clamp could be applied.

I told you of the gentleman who had asked if we used the clamp in the mild cases what we did in the severe ones, and that this case would answer his question. I also offered it as a test case, explaining that if the clamp and cautery did not act satisfactorily in controlling the bleeding, we would abandon its use and go back to the ligature. I am glad to report that the results, both at the time of operation and subsequently, were perfectly satisfactory.

## THE TREATMENT OF HIP DISEASE.\*

By W. R. TOWNSEND, A. M., M. D.

In this short paper it is not my intention to describe any particular forms of braces, or to advocate the use of any special apparatus, but rather to speak of general principles of treatment that can be carried out by any general practitioner. I will consider the subject under the following heads:

1. General or constitutional treatment.
2. Local protection to the diseased joint.
3. Treatment of abscesses.
4. Correction of deformity.
5. Excision.

In the first place, we will assume that a correct diagnosis has been made, and, while in the majority of cases I do not believe a differential diagnosis can be made between the femoral and acetabular varieties, yet the principles of treatment are the same.

In the large majority of cases the disease is of tubercular origin; and, while tuberculosis of bone may not be as fatal to life as tuberculosis of the pulmonary tissues, yet in most cases too little attention is paid to hygienic surroundings and to constitutional treatment. In many instances a brace is applied and nothing further done. An out-of-door life is of great advantage, and if climatic influences are of any value in pulmonary phthisis, they should also be of use in tubercular osteitis. The improvement in some children by even a short trip to the seaside or the mountains is often very marked, and may in some cases be followed by a favorable change in all the symptoms of the disease. At the Hospital for the Ruptured and Crippled during the summer months the children are sent to Summit, N. J., Bath Beach, Long Island, and Saratoga; and children that have left the hospital in very poor physical condition have, in nearly all instances, been greatly improved. They are weighed before going and on return, and we have found the gain in body weight to average about five pounds for the two months' stay, and that even after the return the improvement continues. They sleep

and eat better; in some, sinuses that had discharged profusely for many months have closed, and the change of air seems of the greatest benefit.

In addition to good hygiene, cod-liver oil is a most useful remedy and should be used in nearly all cases. Tonics should be employed where appetite is poor or the child anæmic. Tablets of albuminate of iron, or iron and strychnine, seem to be as useful as any of the various tonics. Other preparations may be made up to suit individual patients, or to suit the views of various practitioners; but I would strongly urge that in all cases constitutional treatment be not neglected.

*Local Protection to the Diseased Joint.*—Two methods of treatment are possible to protect the inflamed joint—one by complete rest in the recumbent position, either with or without the use of any apparatus, and the other by allowing the patient to go about, and keeping the limb more or less completely immobilized by means of a brace. The combination of both methods promises the best results. If the disease is very acute, rest in bed is of the utmost importance, and the patient should be kept flat on the back. In very young children this can be done by placing them on a frame or cuirass. Extension can be made either by Buck's method or by means of a brace. By this method absolute protection is afforded the joint, and the only question to be considered is whether the general health is being impaired by the confinement to bed. In most cases the children do remarkably well, and in Europe many children are kept thus on the back for the entire course of the disease, and retain their general health in a very marked degree. After the acute symptoms have subsided, patients may, however, with advantage be allowed to go about; and, with a properly applied splint, either with or without the use of crutches, in the majority of cases do well. Crutches are of great assistance and render more perfect the protection to the joint, and the extension is much more satisfactorily kept up, no matter what form of splint is used. If during treatment an exacerbation occurs, by putting the child to bed for a few weeks until it has subsided the subsequent course of the disease will usually be much more favorable. The joint should be protected until all signs of disease have disappeared. Never remove the apparatus while reflex spasm is present. Never do away with the brace while abscesses or sinuses exist, and remember that, in the average case without complications, the joint should be protected for at least eighteen months. The mistake of leaving a brace on too long is much less often made than of taking it off too soon.

*The Treatment of Abscesses.*—In considering this part of the subject I believe we must recognize a difference between the abscesses of hip disease and those of Pott's disease, for in the latter, so long as the abscess causes no symptoms, it can be safely left alone; and if treated by aspiration, either with or without the use of injections of iodiform and oil, in about fifty per cent. of the cases the fluid contents will be absorbed and only a cheesy mass remain. Abscesses within the pelvis are hard to drain; sepsis usually follows sooner or later after they are opened, the original source of the disease can not be reached, and the more abscesses of Pott's disease one sees, the less anxious he is to

\* Read before the Hospital Graduates' Club, December 1, 1892.

resort to radical operations. About the hip, however, abscesses are usually near the surface; they generally interfere with the proper application of a brace; they have a tendency to dissect between the muscles, to destroy tissue which, when healing occurs, may cause interference with free muscular movements, and, by proximity to important blood-vessels, may cause danger from hemorrhage. In small abscesses, removal by aspiration and the injection into the sac of iodoform and oil may give good results; but if this fail, and in all large abscesses, the best plan of treatment, I believe, is to freely open, thoroughly scrape with a Volkmann spoon, dust well with iodoform, and endeavor to get healing by first intention. If when the abscess is opened the sinus leading to bone can be found, it should be scraped and any diseased bone also removed. If the bone is found markedly diseased—the head separated, for instance, from the shaft—a more or less complete excision should be done and thorough drainage established. The incision should be in most instances the full length of the abscess, and I have seen incisions of twelve and fourteen inches on the thigh in children with hip abscesses heal by primary union and the patient progress from that time on much more favorably. Where sinuses exist after abscesses, they should be thoroughly scraped and packed with gauze impregnated with iodoform, guaiacol, balsam of Peru, or some such substance.

*Correction of Deformity.*—It must be clearly understood that our aim in treatment is to prevent deformity; but as deformity is one of the early symptoms and we rarely see the patients prior to its occurrence, the problem of how best to correct it is all-important. We have the choice of four methods:

1. Rest in bed with extension by weight and pulley or brace.
2. Complete immobilization of the joint by brace or plaster of Paris.
3. Forcible correction without an anæsthetic, as by use of the Thomas splint.
4. Correction under an anæsthetic.

The first method is the best where symptoms are acute, and whether we use a weight and pulley or brace, the extension must be made in the line of the deformity. A convenient way of accomplishing this is to place the affected lower extremity upon an inclined plane and allow the weight to hang over the foot of the bed, the pulley being fastened to an upright. If the weight of the body does not produce sufficient counter-extension, a band may be made to pass under the pelvis to the head of the bed or under the arm-pits to the head of the bed. If a splint is used, the inclined plane will also be of service, although, of course, traction is made by splint. As reflex spasm subsides and deformity decreases, the inclined plane may be lowered until finally the limbs can be brought down flat and parallel without any tilting of the pelvis.

The second method is applicable in patients who can not for various reasons have bed treatment, and consists in completely immobilizing the joint at the angle of deformity and allowing the plaster of Paris or the splint to remain on for several weeks, then taking it off and reapplying in the most favorable position. By this method I have seen ten

and fifteen degrees of deformity corrected at each application of the plaster or brace until, finally, the limb was straightened completely.

The third method consists in the application of a posterior brace fastened to the body above and to the leg below, and, by forcibly bending the brace which firmly presses against the hip, to forcibly overcome the deformity. No traction is used, and, unless great care is exercised, much damage may be done to the joint. This method is not much in use at the present day.

The fourth method also must be used with great caution; but if during the administration of the anæsthetic the limb be carefully held to prevent any traumatism occurring, and, after the reflex spasm has disappeared, if the limb can be brought down straight without the employment of much force, no damage will be done to the joint; but it is a method that should not be used indiscriminately. When the limb is brought down straight it is held there by means of plaster of Paris or a brace.

In cases where all acute symptoms have subsided and the disease is cured, but with deformity, if this is excessive it should be corrected by operation. Under an anæsthetic, effort is first made to overcome the flexion or adduction by means of tenotomies of resistant muscles or by division of shortened fascia and skin. If this fails, an osteotomy below the trochanter minor is indicated. This operation is useful whether we have ankylosis or motion at the joint. The limb is put up in plaster of Paris or a brace and held firmly until union of the fracture occurs, when the patient is allowed to go about, the limb being supported by a suitable brace. This is an extremely satisfactory operation, especially where the deformity is excessive, for, by overcoming the flexion, patients are cured of the troublesome lordosis and several inches in length added to the limb, and the lameness thereby much diminished.

*Excision of the Hip.*—In my opinion, except in rare instances, excision should be resorted to only in cases where abscesses are extensive, destruction of bone is great, or the life of the patient endangered by excessive suppuration or amyloid changes. König, in a recent article, states that four fifths of all patients with tubercular joint disease have also other forms of tubercular disease. This is probably too high; but one of the principal arguments in favor of excision has been much weakened since it is now known that but rarely is the bone lesion the only focus, and that but a very small percentage of cases of bone tuberculosis develop general tuberculosis. The results of proper and efficient conservative treatment are so good that excisions are rarely done to-day in early cases.

Much more could be said on the subject of the treatment of hip disease, but I have endeavored to speak only of a few general principles that we should have in mind in treating any case. There is one point, however, I would like to emphasize—namely: be sure, if possible, to overcome all deformity before applying a walking brace, for, if not, a deformity will increase and become permanent; and if the case is seen after deformity has occurred, let the first object be to properly protect the inflamed joint, and, secondly, overcome the deformity.

## HYSTERECTOMY

PERFORMED FIVE DAYS AFTER LABOR FOR  
PUERPERAL METRITIS.

BY THE ATTENDING PHYSICIAN,

BRICE W. GOLDSBOROUGH, M. D.,  
CAMBRIDGE, MD.

I OFFER the following contribution under the conviction that a certain percentage of cases of "puerperal fever" tending to run a fatal course could be rescued by a timely radical operation, cleansing the peritonæum, removing ovaries and tubes or uterus; in other words, wherever a local septic focus exists which can not be reached *per vaginam*, attacking it *per abdomen*.

My patient, Mrs. S., came to term, giving birth to a normal healthy living boy, December 8, 1891. She was a primipara, aged thirty-four, in excellent health. The labor was natural and but few examinations were made, and each time after scrubbing hands and nails, both before and after the examination. There was no hemorrhage, the placenta came away under gentle expression in about fifteen minutes, and I could detect no tear on careful inspection of the genitals within as well as outside. Her condition remained normal until seventy-two hours after labor, when she was seized with a severe chill lasting over an hour. I saw her between three and four hours later, when the temperature was 104.5° F. and the pulse 120; she had an anxious, collapsed expression. There was no abdominal pain or nausea, but much headache; the abdomen was flat. The lochia was suppressed to a slight foul, odorous discharge. Tenderness on pressure was marked; she screamed upon pressure on the uterus. My first efforts at treatment were directed toward washing out the uterus with the long point of an alpha syringe, using warm carbolized water. I also ordered at once large doses of sulphate of quinine, forty grains in the day, and phenacetine in ten-grain doses every few hours, as soon as the temperature arose above 103° F. I hastened, in addition, to evacuate the intestinal tract by giving her five grains of calomel and soda. Hot mush poultices were kept constantly on the abdomen. In this way I secured some temporary relief, but, as I now fear, at the expense of masking some of the important symptoms necessary to a correct estimate of her condition.

On the following day (Sunday, the fourth day), Dr. T. B. Steele was called in consultation. The general condition was manifestly worse, the uterus furnishing a scant, fætid, black discharge, and the tenderness increased. Specular examination showed a large, congested, blackish-blue cervix covered with grayish, diptheritic exudate, closely adherent; this could not be detached *en masse*, but broke off, leaving a bleeding surface; this deposit extended down into the vagina and involved the labia. The temperature was 105°, pulse 130, prostration extreme, facies anxious and drawn, tongue coated and dry, thirst intense, abdomen tympanitic, no vomiting, frequent urination. She had had several copious evacuations from the calomel. The diptheritic masses were removed with peroxide of hydrogen applied within the uterus as well as in the vagina, and the uterus was again washed out with warm carbolized water, and phenacetine was continued. A fatal issue seemed certain under the present condition, and we therefore decided, on account of her rapidly failing condition, to telegraph for Dr. H. A. Kelly, of the Johns Hopkins Hospital, to come prepared to perform a hysterectomy.

Dr. Kelly responded at once, arriving the following day (Monday) at one o'clock, and, finding her condition as described,

in addition to a septic pleurisy under way, while the patient appeared to be approaching collapse, performed abdominal hysterectomy.

*Operation.*—An incision was made in the linea alba fifteen centimetres (six inches) in length, and the distended intestines, which were embarrassing throughout the operation, were held to one side by pieces of sterilized gauze, while the large, softish, putty-like, deeply injected uterus was lifted out of the abdomen and a temporary rubber ligature thrown around its cervical end, and the uterus and ovaries and tubes were at once cut away above the ligature, thus removing the whole septic body with the enlarged ovaries and tubes. Extreme care was taken to prevent any fluid from the uterus escaping on to the peritonæum while cutting the organ away. The stump of the cervix was thoroughly burned out with a Paquin cautery managed by Dr. Steele, and then sewed together in two layers—a lower of buried sutures and an upper of symphyteal silk sutures; this stump was then suspended in the lower angle between the lips of the incision where the parietal peritonæum on all sides was attached to the peritonæum of the stump, thus secluding it from the abdominal cavity, closed down to the stump without drainage, and avoiding the more dangerous method of leaving the constricting ligature on the stump to slough off later.

The symphyteal ligatures were left long for the purpose of suspending the stump, and avoiding a tendency to drag back into the abdomen.

A small opening was left in the lower angle of the skin wound leading down to the stump, and was packed with iodoform gauze. There was no peritonitis and there were no adhesions; the right ligament was distended by bright-red cords, looking like lymph vessels, as large as the little finger. Both ovaries were swollen. The uterus was large and everywhere infiltrated, containing necrotic areas in its substance where the muscular tissue was disintegrated.

*After the Operation.*—Following the removal of this great septic focus there was an immediate marked improvement; the temperature became normal within an hour, and the pulse dropped to 120. The pulse varied from 120 to 130 for three days and the temperature 100° to 102.5°.

Subsequently there was no vomiting, no tympany, and no pain; there were no chills until five days after operation, when a stitch-hole abscess formed with severe local pain and elevation of temperature and pulse (140); this discharged on the eighth day with relief of the symptoms. At this time all abdominal stitches were removed. Her subsequent recovery was interrupted in the fourth week by phlebitis beginning in the left ankle, extending up to the body, involving the right leg on the following day. In three to four weeks the suspensory ligature came away, and without any further drawbacks she recovered complete health and resumed all household duties in four months. To-day, just a year after the operation, she is in the best of health, with no sequels save a small abscess which formed in the abdominal cavity and healed.

**An Ohio Association of Railway Surgeons.**—A circular has been issued calling upon all the railway surgeons of Ohio to meet in the amphitheatre of the Ohio Medical University, in Columbus, on March 17th, at 9 A. M., standard time, for the purpose of organizing a State association of railway surgeons. Those who expect to be present are asked to communicate with Dr. Charles H. Merz, of Sandusky.

**The West End Medical Society.**—Officers for the year 1893 have been elected as follows: President, Dr. George W. Leonard; vice-president, Dr. J. M. Kennedy; recording secretary, Dr. F. Spencer Halsey; corresponding secretary, Dr. F. J. Blodgett; treasurer, Dr. S. V. Ten Eyck; pathologist, Dr. Charles N. Dowd.



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THE NEW NATIONAL QUARANTINE ACT.

We publish elsewhere the entire text of the national quarantine act recently passed by both Houses of Congress and now awaiting the signature of the President. We believe that an inspection of its provisions will justify our assertion that it is a poor law that has been formulated as a matter of expediency and offered as a "sop to Cerberus," the public being led to believe that it will accomplish something, while its provisions are such that there is but little change in existing conditions.

It is entitled "An act granting additional powers and imposing additional duties upon the Marine-Hospital Service," and yet the second section of the act states that the *Secretary of the Treasury* shall prescribe the form for the bill of health, and authorizes the President to detail *any medical officer* of the Government to serve as an inspector attached to a consular office. The first part of section third has been a law of the United States since 1799, but that portion of this section that authorizes the Secretary of the Treasury to make such additional rules and regulations as are necessary to prevent the introduction of contagious or infectious diseases into the United States, where the quarantine regulations of the State or municipality are insufficient, is a new feature that is fraught with endless possibilities of conflict between State and national authorities. While the Supreme Court of the United States has held that, at any time that Congress may see fit, national laws assuming control of quarantine may be enacted, it has not held that, granting the right or prerogative to any State or municipality to administer a local quarantine, any department of the national Government can sit in judgment on the way and manner in which that quarantine is administered. There is a great difference between the two positions, and we believe that any health officer would be justified in disregarding such regulations as would be tantamount to a pronounced judgment of incapacity on his administration; and we further believe that the United States courts would sustain him should he ignore such additional rules and regulations as the Secretary of the Treasury might prescribe.

All the provisions of section four are in operation under the law of 1878.

Section six partakes of the nature of a Delphic oracle, as it may be interpreted in several ways; the Secretary of the Treasury is to judge of the efficiency of a local or State quarantine, and, if its provisions are inadequate, he may order a vessel to a national quarantine station. Are such stations to be established along the Atlantic coast to be in readiness for

this emergency? As not a dollar is appropriated to carry out the provisions of this act, even those of section eight, authorizing the purchase of State quarantine establishments by the United States, it is not apparent where, north of Delaware Breakwater, a vessel bound to Portland (Maine), Boston, or New York may be ordered for quarantine at a national station.

No uniform system of quarantine administration or establishment is provided by this act, and it is to be hoped that the public will expect no more from it than the medical profession expects.

ISOLATED TUBERCULAR PERICARDITIS.

At a recent meeting of the Medical Society of Berlin a case of this affection was reported by Professor Virchow. In his experience, according to the *Medical Press and Circular* for December 21, 1892, isolated pericarditis of the tubercular variety has been a rare occurrence. He met with his first case as long ago as when he resided at Würzburg, and he now remembers that it surprised him not a little that the patient, a man of eighty, manifested no other signs of tubercular degeneration. Subsequent cases of this disease have been of a like nature in this respect. Many of these cases, perhaps the majority of them, showed the remarkable complication of extensive pericardial hæmorrhages, as if a rupture of the heart had taken place.

The present case was that of a robust man from Salzwedel. He had enjoyed good health until about eight weeks before coming under Virchow's observation. His attack began with a severe chill. About five weeks later he was taken to the hospital, where the diagnosis of hydropericarditis was made. There was dyspnoea, but no fever, with œdema of the legs and ascites. This otherwise powerful man had given no evidences of renal disease, of cancer, or of tuberculosis. At the autopsy the pericardium, pleura, and peritonæum were found to contain fluid; that of the pericardium was hæmorrhagic. The surface of the heart, which was considerably hypertrophied, had the appearance of having been the seat of a frequently recurrent pericarditis. On a more thorough examination of the cut surface of the heart an enormous eruption of tubercles was seen in the deeper tissue of the pericardium and in the heart's muscular structure itself. The tubercles were full of giant cells, unusually large, but there were comparatively few tubercle bacilli. The origin of the disease—which was one of the first to lead Virchow to dispute the old prevalent doctrine of dyscrasia in the causation of tubercular disease—he held to be local to the pericardium; his opinion is that the disease may begin in a non-specialized inflammation of the serous membrane. After a time adhesions and sclerotic conditions occur, and the morbid tissues become highly vascularized. The next step is a hæmorrhage, and then a tubercular degeneration follows. The affection must therefore be set down as a typical local, and non-dyscrasic, tuberculosis. Virchow had, from his first case of the kind, formed such an opinion, but the full explanation of it did not come to him until later.

## MINOR PARAGRAPHS.

## ST. LUKE'S HOSPITAL.

The board of managers of the hospital announces that a completely equipped country seat on the banks of the Hudson, with a furnished house sufficient for fifty patients, has been generously offered to the hospital for a convalescent home, and, as it is admirably adapted for such a purpose by its location and surroundings, distance from the city, and convenience of access, and as such a home is of great importance to the charity work of the hospital as a place for poor patients, not well enough to be sent to their homes without risk to their recovery, but not sick enough to justify keeping them in the wards to the exclusion of others needing immediate medical or surgical care, they add that it is most desirable that St. Luke's should accept this gift. The offer of the property is accompanied, however, with the condition that \$200,000 be set apart for its endowment, so that its perpetuity may be assured, and the board of managers of the hospital recognizes the propriety and wisdom of this condition; but, as the income of the present endowment fund is fully required for the ordinary work of the hospital, it is unwilling to appropriate any portion of the fund for the use of a convalescent home, unless the \$200,000 required is specially provided for it. The board therefore very properly appeals to the community to subscribe the required amount.

## CONTRACT PRACTICE IN CONNECTICUT.

The *Hartford Courant* states that the Medical Society of the Central District of Connecticut has declared itself opposed (very properly, we should say) to the principle of the contract system as applied to medical practice. The growth of this system appears to have been great during the last few years. In Hartford alone there are said to be twenty co-operative organizations that provide their members with medical attendance for fees ranging from fifty cents to three dollars per annum. In regard to one of these societies, whose secretary conceived the idea of getting the contesting physicians to bid against each other, it is stated that he finally obtained the services of "a doctor in good standing" who would accept a fee of thirty-eight cents a head per annum. The remuneration is held to be only a small part of the advantages reaped by the contracting physician, for the reason that his connection with a large society brings him into relation with a large "outside practice"; and if at any time the contract becomes irksome, the incumbent is likely to find no difficulty in securing a successor.

## NEW MEDICAL WORKS PUBLISHED IN 1892.

NOTWITHSTANDING the impression that might naturally exist that a great many medical works were published in this country during 1892, the *Publisher's Weekly* states that there were 123 new works published on medicine and hygiene in 1892, or 20 more than were published in 1891. In a graded list of nineteen classes of new books, medicine stands number thirteen; so it can not be said that physicians are exceedingly prolific book-makers.

## THE HINDOO-TANEE IDEA OF THE ORIGIN OF MALARIAL FEVERS.

As a curious illustration of a fundamentally correct idea existing in the traditions of a nation, the following passage from Orton's work on *Cholera*, published in 1831, is of interest: "The natives of India are an unenlightened race. Some idea

of the value of their opinion on any doubtful subject may be formed from the fact of their universally believing that malarial fevers are owing to drinking bad water." Time has justified the Hindoo rather than Orton's belief.

## ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 14, 1893:

DISEASES.	Week ending Feb. 7.		Week ending Feb. 14.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	28	21	26	16
Typhoid fever.....	8	3	6	3
Scarlet fever.....	198	17	168	16
Cerebro-spinal meningitis....	5	1	0	0
Measles.....	86	6	67	2
Diphtheria.....	121	43	106	35
Small-pox.....	3	1	0	0

**The Marine-Hospital Service.**—A board of officers will be convened at Washington, on March 20, 1893, for the purpose of examining applicants for admission to the grade of assistant surgeon. Candidates must be between twenty-one and thirty years of age and graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character. The following is the usual order of the examination: 1. Physical. 2. Written. 3. Oral. 4. Clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and the natural sciences. The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations on the cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment, the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive sixteen hundred dollars, passed assistant surgeons eighteen hundred dollars, and surgeons twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty, or fifty dollars a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address Dr. Walter Wyman, Supervising Surgeon-General, U. S. Marine-Hospital Service, Washington, D. C.

**The New York Polyclinic.**—The faculty gave a dinner at the Windsor Hotel on Thursday evening, the 16th inst.

**Change of Address.**—Dr. George E. Walton, from Cincinnati to St. Augustine, Florida.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 24 to February 11, 1893:*

LA GARDE, LOUIS A., Captain and Assistant Surgeon, is relieved from duty at Fort McHenry, Maryland, and will proceed to Chicago, Ill.,

and assume his duties in connection with the World's Columbian Exposition.

**MACAULEY, C. N. BERKELEY**, Captain and Assistant Surgeon, now awaiting orders at Baltimore, Md., will report in person to the superintendent of the U. S. Military Academy, West Point, N. Y., for duty at that post.

**EWING, CHARLES B.**, Captain and Assistant Surgeon, will, in addition to his present duties as attending surgeon and examiner of recruits in Baltimore, Md., report in person to the commanding officer, Fort McHenry, Maryland, for duty as post surgeon, taking station there.

**EDIE, GUY L.**, Captain and Assistant Surgeon, will proceed from New York city to Fort Wadsworth, New York Harbor, and report to the post commander for temporary duty.

A board of medical officers—to consist of **ALDEN, CHARLES H.**, Colonel and Assistant Surgeon-General; **STERNBERG, GEORGE M.**, Lieutenant-Colonel and Deputy Surgeon-General; **HOFF, JOHN VAN R.**, Major and Surgeon; **EDIE, GUY L.**, Captain and Assistant Surgeon—is constituted to meet in New York city on the twenty-seventh day of March, 1893, or as soon thereafter as practicable, for the examination of candidates for admission to the medical corps of the army, and for such other business as may be brought before it.

**WILCOX, CHARLES**, First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

**SHILLOCK, PAUL**, Captain and Assistant Surgeon, promoted as such, to date from January 31, 1893, in accordance with the act of June 23, 1874.

By direction of the Secretary of War, the order assigning **EWING, CHARLES B.**, Captain and Assistant Surgeon, to duty as post surgeon, Fort McHenry, Maryland, is suspended until June 1, 1893, when he will comply with the order.

**POWELL, JUNIUS L.**, Captain and Assistant Surgeon. The leave of absence granted is hereby extended one month.

#### Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending February 11, 1893:

**STONE, L. H.**, Assistant Surgeon. Ordered to the Naval Hospital, Brooklyn, N. Y.

**BARBER, G. H.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Brooklyn, N. Y., and ordered to the U. S. Steamer Miantonomoh.

**BLACKWOOD, N. J.**, Assistant Surgeon. Detached from the U. S. Steamer Miantonomoh and ordered to the Navy Yard, Brooklyn, N. Y.

**WARD, B. R.**, Assistant Surgeon. Ordered to the Training-ship Richmond.

**WINSLOW, GEORGE F.**, Surgeon. Ordered to the U. S. Steamer Monterey.

**ARNOLD, W. F.**, Passed Assistant Surgeon. Ordered to the U. S. Steamer Monterey.

**VON WEDDEKIND, L. L.**, Assistant Surgeon. Ordered to examination preliminary to promotion.

**LUNG, GEORGE A.**, Assistant Surgeon. Ordered to examination preliminary to promotion.

#### Marine-Hospital Service.—Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending February 4, 1893:

**MEAD, F. W.**, Surgeon. To proceed to New London and New Haven, Conn., as inspector. February 4, 1893.

**CARTER, H. R.**, Surgeon. Granted leave of absence for thirty days. February 3, 1893.

**STONER, J. B.**, Passed Assistant Surgeon. To assume command of service at Portland, Ore. January 17, 1893.

**YOUNG, G. B.**, Assistant Surgeon. When relieved, to proceed to Pittsburgh, Pa., for duty. January 17, 1893.

**COPPEL, L. E.**, Assistant Surgeon. Placed on "waiting orders." January 23, 1893.

**EAGER, J. M.**, Assistant Surgeon. To proceed to Cape Charles Quarantine for temporary duty. February 3, 1893.

**STEWART, W. J. S.**, Assistant Surgeon. To proceed to Norfolk, Va., for temporary duty. February 1, 1893.

#### Death.

Passed Assistant Surgeon **SPENCER C. DEVAN** died February 3, 1893, at Philadelphia, Pa.

#### Society Meetings for the Coming Week:

**MONDAY, February 20th:** New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, February 21st:** New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and Westchester (White Plains), N. Y.; Ogdensburg, N. Y., Medical Association; Baltimore Academy of Medicine.

**WEDNESDAY, February 22d:** New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

**THURSDAY, February 23d:** New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

**FRIDAY, February 24th:** Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

**SATURDAY, February 25th:** New York Medical and Surgical Society (private).

## Letters to the Editor.

### SUMMER DIARRHÆA.

CINCINNATI, OHIO, January 11, 1893.

To the Editor of the *New York Medical Journal*:

SIR: In your issue of November 5, 1892, there appeared under the caption "Summer Diarrhæa" a letter from Dr. A. Seibert reflecting upon me. This letter is, to speak mildly, but a tissue of misstatements.

I did not quote Dr. Seibert at second hand and "give the reader to understand through a lengthy quotation from Dr. Clark Miller, etc.," as he there says. At the time when I wrote the article in question I had Seibert's original paper, as published in the *Medical Record* of March 24, 1888, before me, and I quoted him therefrom *verbatim, literatim et punctatim*.

In that article he plainly says: "Now, then, we have found so far that, though the temperature has some decided relation to the frequency of cholera infantum, yet we have no right to accept our first impression that the higher the more, the lower the temperature the less, frequent do we find this complaint; on the contrary, we must admit that comparison of *monthly means* [Italics mine—*I.*] of temperature during the summer months shows that the frequency of summer complaint (like its mortality) is independent of the rise and fall of atmospheric temperature."

I believe that he who runs can read in this paragraph that we must not pay too much attention to daily temperatures in our study of the etiology of summer complaint, as they are misleading, but must draw our conclusions from the *monthly mean*.



It was this method of study, this drawing of conclusions from the monthly mean, that I criticised as erroneous, and corroborated myself by quoting from Dr. Clark Miller, who had expressed a similar opinion in an article published in the *Medical Record* in July, 1888, and given good and valid reason for such criticism.

I further demonstrated the fallaciousness of this mode of study regarding the etiology of summer complaint by comparing Seibert with Turner.

Turner (long before Seibert ever thought of it) collected, during a period of ten years—1867 to 1876—the data concerning epidemic infantile cholera in sixteen towns in England. In the same way as Seibert, by a comparison of monthly means of temperature for the summer months, he arrives at the conclusion that a continued minimal temperature of 50° F. is necessary for the production of summer complaint.

Seibert, in his article above quoted [in my paper he is again quoted], concludes, from a comparison of monthly means, that a continued minimal temperature of not less than 60° F. is necessary for the occurrence of summer diarrhea, and that when the daily minimal temperature is below 60° F. it loses its epidemic character.

There is no need of saying anything further upon this point. I leave the impartial reader to judge between us with whom is the right.

In the concluding paragraph he says: "As to one of them, the belief of Dr. Iloway that Baginski in his *Verdaunungskrankheiten der Kinder*, 1884, etc." The paragraph quoted in my paper, in a foot-note to which this belief is expressed, is *not* taken at all from the *Verdaunungskrankheiten der Kinder*; it is from an address delivered by Baginski in 1889 and published in the *Berliner Klinische Wochenschrift*, No. 46, 1889. This is shown by the reference foot-note in my paper, as anybody who can read plain English can readily see. The statement by Seibert in his letter, that Baginski's reference to American charts was published in 1884, is as erroneous as are his conclusions. If, however, Dr. Seibert feels hurt at my having expressed such belief, I will recant it here publicly, acknowledge that I had no good ground therefor, and admit that at the time when Baginski wrote the aforementioned paragraph he never even dreamed of Seibert, but referred to the charts of some other American worker in this field whose name has unfortunately escaped me.

As to his insinuation concerning the other references found in my paper I shall say nothing, for I am confident that on reflection Dr. Seibert will himself frankly admit that it should not have been made. H. ILOWAY, M. D.

#### NASAL CAUTERIZATION.

336 MAIN STREET, MEMPHIS, TENN., February 3, 1893.

To the Editor of the *New York Medical Journal*:

SIR: I have just read with much interest the paper of Dr. Blois on The After-effects of Nasal Cauterization and the discussion of the same by members of the American Laryngological Association. I feel much interest in this work, as I have done a large amount of it within the past six years. I agree fully with Dr. Delavan in his classification of these cases. I think the lack of success in the hands of some of these gentlemen has been due to their burning when it was contraindicated. In the acute stage of hypertrophy I have found constitutional treatment, combined with the local use of alterative astringents, all that is necessary to effect a cure. Where the stomach, liver, or kidneys are at fault they should be restored to a normal condition, and if rheumatism or gout is present it should be eliminated. For local use I have found iodo-tannin, made after

Sajous's formula, give the best results. It bleaches the tissue and restores it to a normal state. When the hypertrophy is chronic, the cautery applied with care gives the most rapid and permanent cure. I have seen no returns in any case within the past six years. I prepare the nose by cleansing with an antiseptic wash of boric acid or mercury bichloride, dry with cotton, cocaineize, and then apply the cautery at nearly a white heat, being sure to burn the entire hypertrophied surface and none other. I never burn to the bone, but try rather to stop about midway of the submucous tissue. I follow the operation with an ointment of cocaine hydrochloride and white vaseline. I direct the patients to apply it over the burn whenever they experience any discomfort. This has seemed to prevent reactionary trouble, and the burn heals more kindly under its use. After the healing is complete, I see the patient every two or three days for a month or six weeks, and make such applications as are indicated until the surrounding membrane has regained its normal color and thickness. I think, if these precautions are carried out, Dr. De Blois will find no return of the hypertrophies. JOHN I. TAYLOR, M. D.

#### Proceedings of Societies.

##### NORTHWESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK.

Meeting of November 16, 1892.

The President, Dr. E. S. PECK, in the Chair.

**The Treatment of Post-partum Hæmorrhage.**—Dr. ROBERT A. MURRAY read a paper on this subject. (See page 183.)

Dr. A. M. JACOBUS said that he had seen very few severe post-partum hæmorrhages, but where such occurred he considered the use of ice, external frictions, and ante-flexing the uterus the best measures to control it. Severe hæmorrhages would not often occur if the obstetrician made it a practice to follow down the uterus with the hand as the child was expelled, and then kept his hand there for some time afterward to make sure that the uterus remained firmly contracted. The use of Monsel's solution of iron for the purpose of checking hæmorrhage in any part of the body was to be condemned. It had been recommended to administer to patients subject to uterine hæmorrhages such remedies as strychnine and quinine for several weeks prior to confinement, and he had adopted this plan with apparent advantage.

Dr. FRUITNIGHT thought that the author had rendered a good service by calling attention to lacerations as a frequent cause of severe hæmorrhage, and in emphasizing the point about the retraction of the uterus. The use of iron as a styptic should be unequivocally condemned. He thought it would be very difficult to estimate the value of such prophylactic medication as that described by the preceding speaker, for it was not easy to decide in what cases such treatment was indicated. Severe post-partum hæmorrhages would be considerably less frequent if care was taken to make adequate preparation for such an accident, particularly when an anæsthetic had been given. The effect of multiple pregnancies in predisposing to hæmorrhage had been impressed upon him many years ago when he had attended a woman in her seventeenth confinement. In this, as in a number of other cases, he had found the hæmorrhage very promptly controlled by an intra-uterine douche of hot water containing a little vinegar.

Dr. M. BLUMENTHAL said that in a practice extending over forty years he had never lost a patient from post-partum hæmorrhage, and, while this had been largely a matter of good fortune, the infrequency of severe hæmorrhages could be in part ascribed to the fact that he was in the habit of making preparation for the possible occurrence of such a complication. The use of ice, and especially the early administration of ergot, had often prevented more serious trouble. In his experience, severe hæmorrhage arising from lacerations of the soft parts had been very infrequent; such a hæmorrhage was almost always due to atony of the uterus, and for this condition there was no remedy better than ergot.

Dr. McLAURY said that in a somewhat extensive midwifery practice he had met with only two fatal cases of post-partum hæmorrhage. In one apparently desperate case—a twin labor—although there had been no very excessive loss of blood, the woman's abdomen had become enormously distended; it had been compressed by means of a sheet passed around the abdomen, the hæmorrhage had ceased, and the patient had recovered. He knew of nothing better than ergot and compression to bring about proper uterine contraction.

Dr. S. D. POWELL said that he had never seen a serious hæmorrhage which he could attribute to lacerations, and, although he had met with several severe cases of hæmorrhage, none of them had proved fatal. He could not understand how a laceration of the circular artery could produce such a gush of blood as was seen in severe post-partum hæmorrhage. Just as the child's head protruded from the vulva, it was his custom to administer ergot in doses of one or two ounces, and he had seen nothing but good follow these large doses. By turning out the clots from the uterus, and at the same time giving a hot intra-uterine douche, powerful contractions would be excited.

Dr. STEVENS agreed for the most part with what had been said by Dr. Blumenthal and Dr. McLaury, and he was glad to know that such large doses of ergot could be given with safety.

Dr. DESSAU said that in a rather limited obstetrical experience he had seen only one severe case, and that one he had seen with Dr. Powell. He was accustomed to administer ergot hypodermically to prevent hæmorrhage. Several years ago, when practicing early expression of the placenta, he had noticed that the uterus did not remain firmly contracted notwithstanding the administration of ergot; but since he had adopted the plan of waiting for evidence of uterine contraction before resorting to expression he had not had this trouble. He had only seen one case of considerable hæmorrhage from a laceration, and he could hardly understand how a hæmorrhage sufficiently profuse to endanger life could occur from such a cause.

Dr. ROBERT NEWMAN said that the mode of treatment outlined by Dr. Blumenthal seemed to him the most practical, but he was nevertheless of the opinion that in those rare cases of post-partum hæmorrhage which ended fatally it made very little difference what plan of treatment was adopted, as from the first they were beyond all medical aid. He cited a case in which, although he had reached the bedside within seven minutes after delivery, the patient was already dead.

Dr. S. BARUCH agreed in the main with the views which had been expressed, but he wished to call attention to a statement which had been made concerning the "too early use of Crèdè's method." Crèdè's method could not be used "too early," for Crèdè distinctly said that the expression of the placenta was to be begun at a definite time—viz., as soon as the first uterine contraction was felt after the birth of the child. Statistics showed that Crèdè, and those who carefully followed his directions, observed no post-partum hæmorrhages. With the exception perhaps, of the uterine tampon, hot water was the best means of checking the hæmorrhage, and it had been shown that even

a solution of corrosive sublimate was not such a powerful antiseptic as hot water. All irritants when applied to the peripheral nerves acted alike, and consequently both heat and cold produced contractions; but it must be remembered that if either ice or hot water was applied for more than a brief period, the opposite effect would be produced. The only fatal case which he had seen had occurred about twenty-five years ago, when, in accordance with the teaching of Barnes, he had advised the use of sulphate of iron; the hæmorrhage had been stopped, but the woman had died of sepsis.

The PRESIDENT suggested that it would be interesting to hear from Dr. Murray concerning the comparative frequency of post-partum hæmorrhage now and in former days when the forceps was less freely used, and also as to the relation of albuminuria and syphilis to post-partum hæmorrhage.

Dr. MURRAY said that most of the measures usually employed depended upon the nervous system, and, as the nervous system was not capable of responding to such influences when there was a profuse hæmorrhage, recourse must be had to the uterine tampon. Since uterine contractions started from the cervix, a laceration of the cervix caused inefficient contraction of the uterus, just as it afterward caused subinvolution. Sepsis, albuminuria, and syphilis were all very potent causes of uterine atony. One of the first evidences of the development of sepsis in a lying-in ward was the tendency of the uterus to relax again and again after delivery. If the ward was immediately emptied and cleaned, this at once disappeared. It did not follow, because the lower part of the cervix was flabby, that the contraction did not start at the cervix. It was only the misapplication of the forceps which predisposed to hæmorrhage. Syphilis was such a powerful predisposing cause that anti-syphilitic treatment should be instituted previous to confinement in syphilitic subjects. He had seen hæmorrhage occur after a uræmic convulsion, but never during the convulsion.

#### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*Eighty-seventh Annual Meeting, held in Albany on Tuesday, Wednesday, and Thursday, February 7, 8, and 9, 1893.*

The President, Dr. LEWIS S. PILCHER, of Brooklyn, in the Chair.

(Continued from page 170.)

**A Discussion on Epilepsy** (continued).—Reflex Disturbances in the Causation of Epilepsy was the title of a paper by Dr. WILLIAM C. KRAUSS, of Buffalo. The author objected to the term idiopathic in this connection. Its use implied that we were ignorant as to causation. Reflex epilepsy meant a disturbance of nerve centers in the brain from peripheral irritation. It should be sharply distinguished from traumatic epilepsy. The peripheral irritation could be of many varieties, and not every peripheral irritation would cause disturbance of the nerve centers. A neuropathic disposition was fundamental in every case of epilepsy; aside from that, epilepsy might be inherited or spontaneous. Every patient should be carefully examined from head to foot to discover any possible source of irritation. The external causes were usually much more readily discovered than the internal. Of the latter, the location was most frequently in the stomach or in the urethra. Of those which were referable to the stomach, the symptoms should be considered as epileptopathic rather than epileptogenic. Of those which were referable to the urethra, there were many that were congenital. The treatment for cases of urethral origin consisted in the internal use of bromides and the passage of a very mild galvanic current through the urethra.

Mental Epilepsy was the title of a paper by Dr. J. MONT-

GOMERY MOSHER, of Ogdensburgh. The author reviewed the many theories that had been advanced concerning the nature of mental epilepsy. They had all yielded to that of Hughlings Jackson, which was that the condition was due to sudden, occasional discharges or explosions in the gray matter of the brain. The condition might be motor, sensory, or psychic, with convulsions in one class of cases and without them in another. The latter form was rare, and was attended with pallor of the surface in some cases, with flushing in others. Such cases were often regarded as cases of *petit mal*. In place of the spasm there were frequently involuntary co-ordinated phenomena, attended with loss of memory, often with uncontrollable impulse to acts of violence without appreciable cause. They might be associated with hallucinations, with a gradual weakening of mental force, stupor and coma following each attack, and finally terminating in dementia and death.

Dr. A. JACOBI, of New York, in opening the discussion, remarked that too much stress was laid upon the hereditary nature of epilepsy. The cause was very often traceable to deleterious conditions experienced by the subject during birth and infancy. Asphyxia at birth, associated with hæmorrhage or thrombosis of the brain or meninges, frequently resulted in epilepsy or idiocy. The earlier in life cerebral injury was received, the greater the tendency to the subsequent development of cerebral disease. Early closure of the cranial sutures was also a frequent cause of epilepsy. Confirmed idiocy was often associated with defective development or injury of the genital organs. Paraplegia dependent upon irritation of the genital organs had never yet been satisfactorily demonstrated.

Dr. ANGELL, of Rochester, called attention to the intended establishment by the State of an epileptic colony at Sonyea, Livingston County, and believed that much was to be expected from the observation of the disease under the favorable influences which would then exist.

**The Relation in the Male and Female of Genital Disease to Mental and Nervous Affections** was the title of a paper read by Dr. LONDON C. GRAY, of New York. Stanley, in 1833, he said, had been the first among modern authors to teach the doctrine of reflex paralysis. In 1861 Gull had shown that Stanley's propositions were not well founded. In 1886 Weir Mitchell had shown that cerebral or spinal lesions were present in cases of reflex paralysis supposed to be due to lesions of the genital organs.

Fashions in medicine were easily established, and novelty was often mistaken for progress. Irritation of the genital organs had never yet been demonstrated as the permanent cause of serious nervous disease, but it was often an exciting cause in individuals who were already predisposed. Night terrors or other disorders of the nervous system had frequently been cured by circumcision in the male, or the cure of an existing vaginal inflammation in the female; but there was no authentic record of the cure of severe lesions of the nervous system by an operation upon the genital organs. In the psycho-neuroses it was readily admitted that the result of operations upon the genital organs was often remarkable. Many factors must be considered in studying the effect of such operations, in addition to the mere question of the removal of organs. The proof had not appeared that irritation of the male or female genital organs could cause well-defined mental or nervous disease.

**Lithæmia, its Treatment**, was the subject of a paper by Dr. R. W. WILCOX, of New York. The question of lithæmia and the uric-acid diathesis had been devotedly studied by English physicians, but they had not yet reduced the question to its simplest condition. The condition signified imperfect tissue metabolism. If the condition was exaggerated, the phenomena of oxaluria were presented, and all the tissues and organs might

be affected. The treatment involved the consideration of two classes of cases, in the first of which the subjects were obese and sluggish, in the second of a nervous temperament.

For the former an animal diet was appropriate, the omission of proteid foods being a mistake. A vegetable diet for such individuals overtaxed the oxygenating power of the blood; but green vegetables were not unsuitable. Skimmed milk and ripe fruits might also be given, but spices and smoked and salted food should be avoided. Alcohol might also be used in small quantities, without sugar, also the alkaline mineral waters with the addition of lithia. Hygienic conditions should be carefully considered, including exercise in the open air, sun baths, and plenty of sleep. Sufficient Carlsbad Sprudel salts, aloin, and podophyllin should be administered to secure two or three stools daily. If the potash salts were used, they should not be taken in large doses for long periods. Salicylates might occasionally be taken with advantage, and lavage of the stomach occasionally practiced. Phosphate of sodium would also be useful in moderate doses.

**The Registration of Midwives** was the subject of a paper by Dr. J. L. KORTRIGHT, of Brooklyn. There was at present no statute in this State authorizing the occupation of midwives, though they combined the functions of both physician and nurse. It was generally supposed that they treated only simple cases of obstetrics, but this was not in accordance with the facts. Many cases of still-birth, as well as many fatal cases of septicæmia, were attended by them. A bill was proposed which would require that all midwives be licensed by the State, and only after careful and sufficient examination in anatomy and physiology; also that their licenses be renewed each year or revoked for good cause. It was also believed that they should have no power to make returns of deaths during labor or of still-births, such cases being deemed proper for investigation at the hands of physicians.

Dr. O. A. VON RAMDOHR, of New York, presented a convenient receptacle for gauze used in the tamponade of the puerperal uterus.

(To be continued.)

## Book Notices.

**Alcoholism and its Treatment.** By J. E. USHER, M. D., Fellow of the Royal Geographical Society of London, formerly Surgeon Superintendent and Medical officer of Health to the Queensland Government. New York: G. P. Putnam's Sons, 1892. [Price, \$1.25.]

ALCOHOLISM seems to have at last attained the dignity of being styled a disease. That certain conditions resulting from the continued use of alcohol are actually those of disease is an undoubted fact. There is a wide difference, however, between alcoholism and drunkenness, and much discrimination is required in treating the subject properly. The laity, and particularly the drunken part of the laity, have been quick to catch the idea that alcoholism is a disease, and it is very popular among them. If it is a disease, it should be so taught; but it does not necessarily follow that the subject of the disease is irresponsible and beyond control. Depravity may be an inherited disease; it is very frequently acquired "cussedness." People suffering from this latter disorder should be carefully distinguished from those suffering from true alcoholism. The author of this little book has succeeded extremely well in doing this. He has also succeeded in treating a difficult subject



in a fairly judicious and unbiased manner. It would be impossible to write a book to suit the various extremists upon this subject, no matter in how scientific a spirit it were done. One of the best chapters is that upon the legal relations of alcoholism, though the chapters on treatment are extremely good.

#### BOOKS, ETC., RECEIVED.

A System of Genito-urinary Diseases, Syphilology, and Dermatology. By Various Authors. Edited by Prince A. Morrow, A. M., M. D., Clinical Professor of Genito-urinary Diseases, formerly Lecturer on Dermatology in the University of the City of New York, etc. With Illustrations. In Three Volumes. Vol. I. Genito-urinary Diseases. New York: D. Appleton and Company, 1893. Pp. xxvii-1074.

Handbook of Insanity for Practitioners and Students. By Dr. Theodor Kirchhoff, Physician to the Schleswig Insane Asylum, and Privatdocent at the University of Kiel. Illustrated with Eleven Plates. New York: William Wood & Company, 1893. Pp. vi-362. [Medical Practitioner's Library.]

The Use of the Curette in Uterine Surgery. By A. Vander Veer, M. D., of Albany.

A Case of Homotropine Susceptibility. By George M. Gould, M. D., of Philadelphia. [Reprinted from the *Medical News*.]

Hystero-epilepsy, with Report of Cases. By A. Vander Veer, M. D., of Albany. [Reprinted from the *Transactions of the Medical Society of the State of New York*.]

The Reconstruction of the Pelvic Structures in Woman—The Advantages of the Buried Tendon Suture. By Henry O. Marcy, A. M., M. D., of Boston. [Reprinted from the *American Journal of Obstetrics*.]

Umbilical Hernia; Operation; Cure. Ligation of Femoral Artery for Popliteal Aneurysm; Cure. Fæcal Fistula caused by Appendicitis; Operation; Cure. By W. W. Keen, M. D., of Philadelphia. [Reprinted from the *Medical News*.]

Amblyopias. By George M. Gould, M. D., of Philadelphia. [Reprinted from the *Medical News*.]

Hot Water Flushing applied to General Surgery. By Robert O'Callaghan, F. R. C. S. I., etc. [Reprinted from the *Dublin Journal of Medical Science*.]

The Nervous Affections that may arise from Malaria. By William Browning, M. D. [Reprinted from the *Brooklyn Medical Journal*.]

Syngomyelia. Clinical Lecture delivered at the Arapahoe County Hospital, Denver, Col. By James T. Eskridge, M. D. [Reprinted from the *International Clinics*.]

Arterial Saline Infusion. A Report of Three Additional Cases by the New Technique; also, of a Case of Infant Diarrhœa treated by Saline Infusion. By Robert H. M. Dawbarn, M. D., of New York. [Reprinted from the *Medical Record*.]

A New Method of checking Bleeding after Tonsillotomy. By Robert H. M. Dawbarn, of New York. [Reprinted from the *Medical Record*.]

Zur Ehrenrettung des Perinealschnitts. Von Dr. Carl Beck, New York.

Transactions of the Colorado State Medical Society. Twenty-second Annual Convention. By-laws and List of Members. Denver, June, 1892.

Twenty-second Annual Report of St. Catherine's Hospital, Brooklyn. For the Year 1892.

The One Hundred and Third Annual Report of the Board of Trustees of the New York Dispensary, for the Year 1892.

Report of the German Poliklinik of the City of New York, for the Year 1892.

Ueber eine neue Behandlungsmethode der Nephrolithiasis mit Glycerin. Von Dr. August Hermann. [Sonderabdruck a. d. *Prager med. Wochenschrift*.]

## Miscellany.

**The National Quarantine Act of 1893.**—The *Abstract of Sanitary Reports* for February 10th publishes the following as the text of the National Quarantine Act which has passed both Houses of Congress and awaits the signature of the President:

"An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or other vessel from any foreign port or place to enter any port of the United States except in accordance with the provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding five thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States District Attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

"SEC. 2. That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

"The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of furnishing information and making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than five thousand dollars, the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States District Attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

"SEC. 3. That the Supervising Surgeon-General of the Marine-Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, co-operate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regula-

tions are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose.

"The Secretary of the Treasury shall make such rules and regulations as are necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place to any port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers, and crew; which shall be published and communicated to and enforced by the consular officers of the United States. None of the penalties herein imposed shall attach to any vessel or owner or officer thereof until a copy of this act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days, in the port from which said vessel sailed; and the certificate of such consul or consular officer over his official signature shall be competent evidence of such posting in any court of the United States.

"Sec. 4. That it shall be the duty of the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury, to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act, and to obtain information of the sanitary condition of foreign ports and places from which contagious and infectious diseases are or may be imported into the United States, and to this end the consular officer of the United States at such ports and places as shall be designated by the Secretary of the Treasury shall make to the Secretary of the Treasury weekly reports of the sanitary condition of the ports and places at which they are respectively stationed, according to such forms as the Secretary of the Treasury shall prescribe; and the Secretary of the Treasury shall also obtain, through all sources accessible, including State and municipal sanitary authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to collectors of customs and to State and municipal health officers and other sanitarians weekly abstracts of the consular sanitary reports and other pertinent information received by him, and shall also, as far as he may be able, by means of the voluntary co-operation of State and municipal authorities, of public associations, and private persons, procure information relating to the climatic and other conditions affecting the public health, and shall make an annual report of his operations to Congress, with such recommendations as he may deem important to the public interests.

"Sec. 5. That the Secretary of the Treasury shall from time to time issue to the consular officers of the United States and to the medical officers serving at any foreign port, and otherwise make publicly known, the rules and regulations made by him, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage; and all such other rules and regulations as shall be ob-

served in the inspection of the same on the arrival thereof at any quarantine station at the port of destination, and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow fever, or other contagious or infectious diseases; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and its master, in respect to the same and to its cargo, passengers, and crew; and the master of every such vessel shall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry; and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

"Sec. 6. That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest national or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station.

"Sec. 7. That whenever it shall be shown to the satisfaction of the President that by reason of the existence of cholera or other infectious or contagious diseases in a foreign country there is serious danger of the introduction of the same into the United States, and that notwithstanding the quarantine defense this danger is so increased by the introduction of persons or property from such country that a suspension of the right to introduce the same is demanded in the interest of the public health, the President shall have power to prohibit, in whole or in part, the introduction of persons and property from such countries or places as he shall designate and for such period of time as he may deem necessary.

"Sec. 8. That whenever the proper authorities of a State shall surrender to the United States the use of the buildings and disinfecting apparatus at a State quarantine station, the Secretary of the Treasury shall be authorized to receive them and to pay a reasonable compensation to the State for their use, if, in his opinion, they are necessary to the United States.

"Sec. 9. That the act entitled 'An act to prevent the introduction of infectious or contagious diseases into the United States, and to establish a national board of health,' approved March third, eighteen hundred and seventy-nine, be and the same is hereby repealed. And the Secretary of the Treasury is directed to obtain possession of any property, furniture, books, paper, or records belonging to the United States which are not in the possession of an officer of the United States under the Treasury Department which were formerly in the use of the national board of health or any officer or employee thereof."

**Recent Investigations regarding Ringworm.**—Dr. George D. Holsten, of Brooklyn, contributes the following:

Dr. Louis Wickham, of Paris, in a letter published in the *Monatshefte für praktische Dermatologie* for December 15, 1892, reports a communication made by Sabouraud, a pupil of Besnier and the Pasteur Institute, to the French Society of Dermatology and Syphilography on November 10, 1892, on the existence of various forms of trichophytina.



Sabouraud's investigations embraced more than one hundred cases in which the hairs and scales were examined microscopically; over six hundred cultures made from this diseased material; more than sixty cultures in hanging drops, a method especially suited to the study of the botanical structure of the parasite; and, lastly, more than thirty inoculations.

In examining the hairs he found that all the trichophyton spores from a certain diseased scalp were of equal size, but on comparing the spores from different scalps there was a marked difference in that in certain cases small spores ( $3\ \mu$ ), in others large ( $7$  to  $8\ \mu$ ), were present. Further, the small spores were not combined with an appreciable amount of mycelium, but were irregularly arranged in large heaps in the hairs and were also covered externally with a sort of veil. The large spores, on the contrary, would be combined with quite an appreciable amount of mycelium, the spores being regularly arranged in rows between the mycelial threads, which were also inclosed in the hair, but not surrounded by a membrane. All this could be observed under a microscope after boiling the hairs in a forty-per-cent. potash solution. In cases of direct contagion—in the household or school—the spores were and remained the same as in the case from which the disease had been contracted. In twenty especially severe cases of falling of the hair the disease was due in nineteen of them to the small spores without any appreciable mycelium. Altogether sixty per cent. of the cases of alopecia were due to the small as against forty per cent. due to the large spores.

The bacteriological examination sustained the differences found microscopically. The trichophyton with large spores cultivated on gelatin was at first feathery and white, but after from fourteen to eighteen days became mealy and yellow. On potato a yellowish-brown culture was obtained, but, on whatever media cultivated, the cultures retained their mealy appearance and light yellowish-brown color.

The small trichophyton spores assumed the feathery appearance much later, were always of a clear white, and remained so on all media. On potatoes, during the first ten days before the feathery appearance obtained, they appeared as a reddish-brown spot very much resembling dried blood.

Not one of his cultures—more than a hundred in number—showed any intermediate forms, and never did one form pass into the other.

All his cases of ringworm of the beard, six in number, as well as all of non-hairy portions of the body (twenty-three), showed the large spores. From these facts he draws the conclusion that the most difficult cases to treat are those due to the small spores, which seem to have a preference for the scalp in children, giving rise to a tinea tonsurans and producing alopecia, which, however, is to a great extent not contagious for adults; while cases of tinea circinata and ringworm of the beard in adults are due to the large spores.

In about one third of the cases of tinea circinata—namely, those having a sycois-like appearance—in tinea agminata, and in kerion Celsi of children, he also found a large spore whose cultures appeared identical with the above-described macrospore, but differed somewhat through certain secondary or non-essential divergences, which were, however, always more or less conspicuous and nearly always appeared, so that up to the present it is impossible to say if these were due to an unalterable variety or only dependent upon some peculiarity in the method of cultivation, and would again return to the normal type.

The same reservation is made with regard to a fourth spore (*Trichophyton macrosporum anomæon*), which he once found in a case of herpes tonsurans. The spores were large, of irregular form, and of variable size, without appreciable mycelium. The disease showed many peculiarities of variation, as did also the cultures, which were not entirely identical with the trichophytina macrosporum.

Finally, besides these four forms, he found in two cases an entirely peculiar culture which had no resemblance whatever to the parasites of trichophytina humana. One was a trichophyton giving black cultures, found in a case of tinea circinata of a peculiar form; the other, a rose-colored culture found in a tinea barbae. All the circumstances pointed to these two cases being directly due to contagion from animals.

Inoculations with the small-spored trichophyton on non-hairy portions of skin produced only a moderate degree of erythema with subsequent detachment of epidermis in large scales and subsidence of all

symptoms. With the different forms of large spore, however (besides many failures), the trichophytosis circinata communis was obtained, the appearance of which, no matter from which variety inoculated, always remained the same.

**The New York Academy of Medicine.**—The programme for the meeting of Thursday evening, the 16th inst., included a paper entitled *A Consideration of some Points in the Applied Physics of Physical Diagnosis*, by Dr. Charles E. Quimby.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 20th inst., Dr. H. Knapp will read a paper on *The Early Diagnosis of Sarcoma of the Chorioid*.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 21st inst., Dr. George B. Fowler is to read a paper on *Diet in Disease*.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 22d inst., Dr. George A. Richards will read a paper on *Gangrenous Gingivitis*.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 23d inst., Dr. Horace T. Hanks will read a paper on *Pelvic Inflammation following the Puerperal State*.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*



## Original Communications.

THE MECHANISM AND DIAGNOSIS OF  
VERTEX PRESENTATION.\*

By J. CLIFTON EDGAR, M. D.,

ADJUNCT PROFESSOR OF OBSTETRICS IN THE MEDICAL DEPARTMENT OF  
THE UNIVERSITY OF THE CITY OF NEW YORK;  
ASSISTANT OBSTETRIC SURGEON TO THE NEW YORK MATERNITY HOSPITAL;  
OBSTETRICIAN TO THE EMERGENCY LYING-IN HOSPITAL;  
ATTENDING PHYSICIAN TO THE NEW YORK LYING-IN HOSPITAL.

If we are familiar with the three factors of labor—namely, the passages, the passenger, and the forces—we are in a position to appreciate that most interesting part of the subject of parturition: the manner or, better, the combination of movements by which Nature guides the fetus from the uterine cavity through the pelvis into the external world. In the whole range of obstetric science and art there is perhaps no one subject more worthy of a careful, conscientious, and diligent study. There is no one subject upon which so much depends as regards the prognosis for both mother and child. If perchance one link in the chain of these movements going to make up the mechanism of labor fails, and we are unable, by reason of our ignorance of Nature's methods, to step in at the right moment and supply the deficiency, either mother or child is bound to suffer.

It is quite true that in our first ten or twelve cases of labor absolutely no interference may be called for in their management, but it is equally true that in our next series of ten or a dozen cases Nature may fail us in some particular; we are unable to appreciate the difficulty and to correct it, and untold disaster is the result. With equal success might we hope to appreciate and treat certain cardiac diseases without an understanding of the anatomy and physiology of the heart as to attempt the management of labor cases without a clear knowledge of the mechanism of parturition.

Before turning our attention to the mechanism of labor in vertex presentations, let us recall the statement of Pajot that "all labors, from a mechanical standpoint, are subject to the same law, and that there is really only one mechanism of labor, no matter what the presentation or position, . . . provided only that expulsion occurs spontaneously and at term, as abortions do not result in regular expulsion." We may state, then, to-day that there is but one mechanism of labor, no matter if the presentation is the vertex, the brow, the face, or the breech. A recent writer upon midwifery would compare the mechanism of labor in vertex presentation to a tune, the mechanism of labor in all other presentations being the same with variations. Further, we may state that, in the mechanism of labor in all presentations and positions, six stages may be described: 1. In the first stage the fetus, pressed upon and influenced by the general intra-uterine pressure, and perhaps also to a slight extent by the voluntary efforts of the mother, tends

to accommodate, to mold the shape of its presenting part to suit the canal through which it has to pass. 2. In the second stage this molded presentation engages and descends into the pelvis. This stage, then, is the stage of engaging and descent. 3. Having molded, having engaged, having descended a certain distance—namely, to the pelvic floor—the presenting part executes a movement, so as to bring its long axis in correspondence with the longest diameter of the outlet of the pelvic canal. This is the third stage, or stage of internal rotation. 4. Again the presenting part executes a further movement by which it sets itself free from the genital canal. This is the fourth stage, or, as we may say, the stage of expulsion of the first part of the fetus. 5. Again, as the result of the internal rotation of that portion of the child which is still within the birth canal, we have a rotation of that part which has already been delivered, and this is termed the stage of external rotation. 6. Then the sixth and last stage is a second period of expulsion, or the escape of that part of the fetus heretofore unexpelled.

While these six stages in the mechanism of labor are not always absolutely the same for all presentations and for all positions of the fetus; while we may have flexion in one instance, extension in another; while it may be the right shoulder that rotates to the front in one and the left in another; while the presentation may be face, brow, vertex, or breech, yet we shall be certain to encounter these stages in all labors, no matter what the presentation, no matter what the position.

Having thoroughly grasped these facts, then, let us turn immediately to the consideration of vertex presentation. The number of positions of the vertex described vary in different countries and according to different authorities. The English usually describe four positions; those American writers who follow the teachings of Hodge, on the other hand, would have us describe six positions; while the Germans, thinking both these classifications too complicated, describe usually but two positions. The simplest classification is to speak of four positions, and we shall therefore adopt that; and this is more readily understood if we imagine that the pelvic inlet is divided into four quadrants by the antero-posterior and transverse diameters, and that the positions vary according as the vertex occupies one or other of these four quadrants. And just here let us remember that by the right oblique diameter we mean the one passing through the right sacro-iliac synchondrosis, and by the left the one passing through the left sacro-iliac joint.

The four positions of the vertex, then, are: 1. The first or left occipito-anterior position. 2. The second or right occipito-anterior position. 3. The third or right occipito-posterior position. 4. The fourth or left occipito-posterior position. And, as regards the relative frequency of these several positions, it is to-day pretty well agreed by authorities upon the subject that the first position obtains in from sixty-five to eighty per cent. of cases, and that the third, second, and fourth positions are the next most frequent in the order named.

We shall first describe the mechanism of labor in the first or left occipito-anterior position, and then in the third,

\* A lecture delivered at the University Medical College, December 6 and 8, 1892.

the next most frequent, or the right occipito-posterior position of the vertex.

In the first stage, the mechanism that we have to describe is one of flexion and molding, and we can readily comprehend how flexion is brought about when we hold up a fetal cadaver, and we immediately perceive that the forehead, or the long end of the lever made by the head upon the spinal column, falls, by reason of its own weight, upon the chest of the fetus; consequently, when the force of uterine contraction acts upon the head through the spinal column, the short end, or the occipital extremity of the head, is more directly in the line of action of this force, and consequently tends to be driven farther downward in the birth canal, and hence flexion of the child's chin upon its sternum is produced. We have every reason to believe, however, that flexion is in many cases complete before labor actually sets in, for we know that the normal attitude or posture of the child within the uterus is one of flexion, and we can recall, from our observations of labor cases in the New York Lying-in Hospital, how the child's posture, immediately after its expulsion from the birth canal, was often one of flexion between the thighs of its mother. Even in the absence of uterine contraction, flexion may be brought about by this tendency on the part of the child to take up this particular attitude, and also by a principle of mechanics that is termed a couplet, which latter we will pass over for the present. Molding, then, and flexion constitute the first stage in the mechanism.

Recalling our general principles, the next stage will be one of engagement and gradual descent; and, as in all mechanisms of labor, one great principle—namely, accommodation or adaptation—plays a prominent part, consequently the long diameter of the head would tend to enter the pelvic inlet in its longest diameter, which is, as we know, the transverse; and Spiegelberg has shown that the head does in vertex presentation enter the transverse diameter of the pelvic inlet in 81.4 per cent. of all cases. So far it has been all very simple; there is nothing that any one of us can not readily understand and comprehend; but we come now to the third stage in the mechanism—namely, the internal rotation of the first part, or, in this case, the head.

Perhaps there is no part of the mechanism of labor that has caused the student such difficulty and concerning which there has been such difference of opinion as the cause of this internal rotation, whether it be the internal rotation of the head, or of a shoulder, or of a buttock. There have been various explanations advanced, most of them more or less unsatisfactory. For instance, Baudelocque and his followers taught that the anterior and the posterior inclined planes of the ischia determined the anterior or the posterior rotation of the lowest portion of the presenting part. Naegele, however, pointed out the fallacy of this explanation; for, contrary to Baudelocque, he demonstrated that the occiput rotates anteriorly even when it is originally situated on a posterior inclined plane. Cazeaux would have us explain the rotation upon mathematical and mechanical principles; but, without going into the matter, suffice it to say that while they beautifully explain the cause of anterior

rotation in anterior positions, yet they are absolutely insufficient to account for the anterior rotation in originally posterior positions. Tyler Smith, Leishman, and Playfair, as we are aware, teach that the anterior rotation is determined by the ischial spines, and while here again the explanation fully accounts for the anterior rotation in anterior positions, we are unable to understand how they produce anterior rotation in the third and fourth positions of the vertex. It was not until Paul Dubois performed his experiments upon the cadaver that we find anything like a satisfactory explanation for anterior rotation of the lowest portion of the presenting part under all circumstances. Dubois's experiments consisted in pushing fetal cadavers of various sizes through the birth canal of puerperæ recently dead, and he found that, no matter in what position he placed the vertex, whether to the front or to the rear, anterior rotation of the vertex occurred as soon as it reached the pelvic floor; but there came a time in his experiments when anterior rotation completely failed and the long diameter of the presenting part would remain in the same diameter of the pelvis in which it entered.

Recently, through the courtesy of the coroner, I was enabled to perform similar experiments here at the University Medical College. A German girl, twenty years of age, was found one morning upon the floor of her employer's store dead from post-partum hæmorrhage. One twin had been born, and when the cadaver was turned over to me the second twin and the double placenta I found within the uterine cavity. The twin born spontaneously was of such a size as to dilate the passages to a very small extent and to cause no appreciable laceration whatsoever. Into the head of a fetal cadaver at a point half an inch posterior to the small fontanelle I fastened this swivel, and, having well lubricated it, I attached to the ring of the swivel this whipcord. Then opening the abdomen and uterus of the unfortunate woman, by means of a uterine dressing-forceps I passed the cord attached to the swivel down through the cervix, vagina, and out at the vulva. Then I commenced my experiments. I placed this fetus in its normal attitude within the uterus, first in the L. O. A., then in the R. O. A. position, and each time upon making traction upon the cord through the vagina, and always in the axis of that part of the parturient canal in which the presenting part rested, I found that as the head approached the pelvic floor internal rotation of the head took place completely, so that the sagittal suture would appear exactly in the antero-posterior diameter of the outlet. In watching for the internal rotation of the shoulders, I found that while in the first two experiments internal rotation was complete, yet in the subsequent ones the rotation became less and less marked, until finally there was no attempt at rotation whatsoever on the part of the shoulders. I placed the fetus in the third and in the fourth positions in its normal attitude at the pelvic brim; and here again, upon making traction from below, anterior rotation occurred in the former instance about the right side of the pelvis, and in the latter about the left side, until the sagittal suture once more was brought into the antero-posterior diameter of the pelvic outlet and the small fontanelle just under the pubic arch.

Still another test I made: The vertex was placed directly posterior and just under the promontory of the sacrum, and, upon making traction and drawing the occiput to the pelvic floor, we found that, instead of remaining permanently at the rear, after a few seconds anterior rotation on the part of the occiput commenced, and once more we found the vertex at the pubes.

A second time anterior rotation was secured in the R. O. P. and in the L. O. P. position, and then the occiput was placed once more in the hollow of the sacrum to test this position further, and it was found that, in spite of the strongest traction we were able to make on the cord through the vulva, the vertex remained firmly and permanently in the hollow of the sacrum.

The same result followed experiments in other oblique and transverse positions—namely, anterior rotation of the occiput failed and the sagittal suture appeared at the outlet in almost the same diameter in which it was originally placed at the inlet, thus proving that some factor in the causation of anterior rotation of our first experiments failed us, or performed its duty imperfectly, in the subsequent ones.

We may draw our own conclusions as regards these experiments. If anterior rotation in any position is caused by the ischial planes or spines, then why was it, in the experiments that I have just cited, rotation of the presenting part failed after the fœtus had been drawn a certain number of times through the pelvis? If the rotation is due to the inclination of the pelvis, as was maintained by Tarnier, or to the shape of the fetal head, as was taught by Pajot, or to the ischial planes or spines, why should the rotation fail when no evident change took place in the shape of the child's head in the inclination of the mother's pelvis, or in the ischial planes or spines? We are pretty safe in stating, then, that the main and determining cause of the rotation of the lowest portion of the presenting part is the resistance of the posterior portion of the pelvic floor, and more particularly of the two levator ani muscles which have been so beautifully dissected out and illustrated by Dr. Dickinson, of Brooklyn. When they lost their resistance and became relaxed in the cadaver, as the result of repeated trials with the fœtus and swiveled string, anterior rotation failed to occur. It is undoubtedly the fact that it is not one factor alone, but several that determine this internal rotation. Accommodation; adaptation; the great principle that runs through all the mechanism of labor, whereby the long diameter of the presenting part adapts itself to the long diameter of that part of the pelvis in which it may find itself; this corkscrew-like arrangement of the pelvis; the lessened resistance caused by the urethral and vaginal orifices in front; *the greater resistance of the thicker and heavier tissues in the posterior half of the pelvis*; the inclination of the pelvis; the shape of the child's head; the inclination of the uterus causing the anterior portion of the presenting part to reach the pelvic floor first—all play their part in the causation of anterior rotation.

Having understood this, then, the remaining stages are readily comprehended. Rotation being complete, there comes a time when the occiput, having passed under the

subpubic ligament and being partially born, the shoulders attempt to enter the pelvis with the head; and as under ordinary circumstances there is not sufficient room for both, the head escapes from the vulva by a movement of extension, thereby leaving the pelvis free for the shoulders to enter. We say the head escapes by a movement of extension. This is not strictly true, for repeated observations have convinced me that the bulk of the head, including the occiput, is born before the chin leaves the sternum—a fact we must always remember in our attempts at perineal protection and forceps delivery. This escape of the head is caused by the force of uterine contraction acting through the spinal column and by the contraction of the muscles that go to make up the pelvic floor, and we see the beautiful provision of Nature that has caused only the smallest diameter—namely, the suboccipito-bregmatic, three and a half inches in length—to be passed through the birth canal. And even at the vulva, as we can readily appreciate from the manikin, the occiput having been born first, all the diameters of the fetal head that pass in succession through the vulvar opening are measured, not from the occipital protuberance, but from a point midway between it and the foramen magnum, and are consequently the smallest or the suboccipital diameters.

The first part now is born and it only remains to follow the mechanism of the second part, and we have completed the mechanism of labor in the first position. The shoulders, we have every reason to believe, enter the pelvic inlet in the opposite oblique to the one in which the head entered; or, if the head entered in a transverse diameter, it is possible in a roomy pelvis, and with a child that is not too large, for the shoulders to enter in the opposite diameter or in the antero-posterior diameter of the inlet. At all events, we usually find the shoulders first in an oblique diameter, and, as we have learned, the anterior portion of the presenting part, because of the direction of the axis of the superior strait, is lower than is the posterior; consequently it is this part that first reaches and is first influenced by the resistance at the floor of the pelvis and is deflected anteriorly to the pubic arch. If both shoulders came to the pelvic floor at one and the same time, we have every reason to believe that they would both be equally influenced by the factors causing anterior rotation, and consequently the bisacromion diameter would remain in the same diameter in which it entered the pelvic inlet. Investigation has taught me that while complete anterior rotation of the head is the rule, yet complete rotation of the shoulders is not by any means so constant as is that of the head. Even before the shoulders begin to rotate internally we see an unwinding, as it were, of the muscles of the neck that have been twisted in the internal rotation of the fetal head, and, as a consequence, the head makes a partial movement of external rotation, and this first partial movement of rotation is termed restitution. Now, a glance only at the manikin will show us that when the shoulders rotate within the pelvis there must in consequence be a decided rotation on the part of the head which is already delivered, and this further and more marked rotation of the head is termed the external rotation of the head that you are familiar with, whereby the face of



the child looks almost directly to the inner surface of the right thigh of its mother.

We have now followed the bisacromion diameter into the antero-posterior diameter of the pelvic outlet, and if we have observed our cases of labor in the tenement houses carefully, we shall remember that in most instances the anterior shoulder was the one that first appeared at the vulva; and if we are close observers, we shall further remember that sometimes it was this anterior or right shoulder that first was fully born, and in other instances it was the posterior or left shoulder and arm that were born first, and circumstances seem to determine whether it shall be the anterior or the posterior arm that is first expelled. In a multipara, particularly if her parts are roomy, if her perineum has been partially destroyed at a previous confinement, the posterior shoulder and arm are very apt to be the first born; whereas, on the other hand—and we are speaking, you understand, of spontaneous delivery where we do not interfere with the birth of the shoulders—if the case is one of a primipara with perineum intact and with somewhat rigid soft parts, it may be the anterior shoulder and arm that are first brought into the world. So the shoulders are born; the body usually follows immediately afterward. Some obstetricians would speak of a stage of rotation of the buttocks, but we have every reason to believe that when the shoulders rotate the buttocks rotate with them, and consequently there is little or no torsion of the body, but the buttocks come down and are expelled in the antero-posterior diameter of the outlet in practically the same way as are the shoulders.

Let us now describe the mechanism of the third or R. O. P. position, and this will be sufficient to illustrate the mechanism in all posterior positions of the vertex. The suboccipito-bregmatic diameter in this instance, as you see in this pelvis, enters the inlet in the right oblique or perhaps in the transverse diameter; of course we presuppose that flexion and molding have taken place. Following engagement we have descent—descent in some cases until the pelvic floor is reached—before any rotation in either direction takes place; and yet we will observe cases where anterior rotation of this vertex occurs before the pelvic floor is reached, and in these instances we have every reason to believe that it is the resistance of the posterior wall of the uterus or of the rectovaginal septum that determines this rotation. When once the vertex has reached the pelvic floor the case may terminate in one of four ways, and, stating them in the order of their frequency, they are as follows: First, complete anterior rotation of the occiput about the right half of the pelvis until the pubes is reached; second, posterior rotation of the vertex into the hollow of the sacrum and birth of the head with the occiput to the rear by extension over the perineum; third, posterior rotation and impaction; and fourth, the conversion of the vertex presentation into one of face presentation; and although this latter termination is extremely rare, yet, as there are some half a dozen cases on record, we are compelled to recognize its possibility.

1. It is needless for us to spend any time in a description of the first method of termination; the same princi-

ples apply here as apply in the first and second positions. The increased resistance of the posterior inclined plane of the pelvis causes the occiput to be deflected in the direction of least resistance—namely, to the vulvar orifice.

2. We see instances, however, where from some cause—it may be the roominess of the pelvis; the smallness of the child; want of rigidity of the pelvic floor from numerous labors or from other causes; rupture of the floor; distention of the floor by the passage of the first twin; incomplete flexion of the head, permitting the sinciput to be as low or lower than the occiput—this anterior rotation fails. According to authorities it is a rare condition, yet according to Naegele's statistics it occurred once in seventy-three cases of labor. Should, then, anterior rotation fail and the occiput remain in the posterior half of the pelvis, it is possible, under certain conditions, for the occiput to follow the posterior wall of the parturient canal and be born by extension over the edge of the perineum. Labor then is almost always prolonged and in some instances impossible as the result of impaction. The cause of the prolongation of the labor under such circumstances was first pointed out by P. Dubois, and by reference to this diagram that hangs before us and to this fetal cadaver which I hold up in my hand, we can readily see how it is that the labor is either exceedingly tedious and prolonged or absolutely impossible. Glance at the back of a child's neck, and we see that it is not much over two inches in length; observe the posterior wall of the parturient canal from the promontory of the sacrum to the edge of the perineum, and we readily see that the distance is in the neighborhood of ten inches, counting five inches from the promontory to the tip of the coccyx and five more from the tip of the coccyx to the edge of the distended pelvic floor. If an anterior position of the vertex obtains, birth of the head is readily and easily accomplished, for the two inches of the back of the neck without any difficulty pass over the inch and a half of the anterior pelvic wall measured at the symphysis, and the head is born before the shoulders necessarily enter the pelvic inlet. How different when the reverse obtains! For the head to be born in an occipito-posterior position we may hope for no break in the straight or rigid branch that the fetus represents until the head, together with the neck, has traversed the ten inches of the posterior pelvic and perineal wall, and the head is finally permitted to be born by extension over the perineum.

Delivery under such circumstances is certainly possible by the natural forces, and some of you, to my certain knowledge, have seen such instances in your service in the New York Lying-in Hospital, and you will recall how, after an exceedingly tedious labor and extreme flexion of the head on the sternum and with the occiput distending the pelvic floor for perhaps several hours, finally, with tremendous bearing-down efforts on the part of the parturient, the occiput was enabled to climb up, as it were, over the perineum, the forehead and face appeared under the pubes, the perineum slipped by the occiput and along the neck of the child, and extension completed the birth of the head.

3. But, unfortunately, we occasionally meet with instances in our practice where either anterior rotation of the

occiput or spontaneous delivery with the occiput to the rear absolutely fails to occur. And then, if we have added to this an impaction and swelling of the shoulders that have partially entered the pelvic cavity, we have one of those tragedies of midwifery practice which I trust you may never be called upon to face. Given a normal-sized fetus, a pelvis of ordinary dimensions in perhaps a primipara with rigid soft parts, and the cause of the impaction of those cases of occipito-posterior position that have been improperly treated early in the second stage of labor is easily understood. Once more I must ask your attention to this diagram and to the foetal cadaver which I hold up before you. The occiput passes into the hollow of the sacrum, reaches the coccyx perchance, but still is several inches from the edge of the perineum—what must, what only can happen under the given circumstances? Why, the body of the child must enter the pelvic cavity together with the head in order to allow of the occiput's reaching its ultimate goal. Then why do we have impaction? We have impaction because the dorso-sternal diameter (four inches) is added, as you see, to the fronto-mental diameter (three inches and a half), giving us an antero-posterior diameter of the foetal mass of seven inches and a half that the uterine forces are attempting to drive through a pelvis the average diameter of which is usually considered to be not more than four inches and three quarters. And this is not all; as has been pointed out, the length of the foetal ellipse when the child is in its normal attitude is half the length of the entire fetus—namely, about eleven inches; consequently, when the occiput has come up to the edge of the perineum the breech of the child has practically entered the inlet of the pelvis, and the uterus under such circumstances can not but act at a disadvantage. We can readily see, then, what either spontaneous or artificial birth of the fetus means to the mother—almost invariably a partial or complete loss of her perineal structures. I have only recently been requested to see a puerperal woman suffering from sepsis, where the forceps had been applied under the conditions that we have just named, and the forceps delivery had resulted in an entire loss of the woman's perineum and an inch and a half of the recto-vaginal septum.

4. The fourth manner in which this posterior position may terminate is for the occiput in some way to become arrested in its course, and then, the chin leaving the sternum, rotation on a biparietal diameter takes place, the head, as it were, turns a somersault, becomes extended within the pelvic cavity, and we have resulting a face presentation of the mento-anterior variety. This is all that we shall say concerning the mechanism of vertex presentation until we speak of the management of the same.

*Diagnosis of Vertex Presentation.*—We are now in a position to consider the diagnosis of vertex presentation, and we are here called upon to make the diagnosis, first, during pregnancy; secondly, during labor; and thirdly, after labor has been completed. The diagnosis of vertex presentation during pregnancy or before the os is sufficiently dilated to permit of our distinguishing sutures or fontanelles or the character of the presenting part is made almost entirely by what is known as external or abdominal palpation. Let me

say here that the subject of abdominal palpation is one that we can not become too familiar with and one that we can not practice too often. There are those who maintain that if we could do away with all personal contact (by that we mean all internal examination or the use of instruments or catheters) we could absolutely do away with that scourge of former years—namely, puerperal septicæmia. In fact, Leopold, of Dresden, professes to have demonstrated by statistics—and statistics do occasionally prove something—that in proportion as the number of vaginal examinations diminishes, the percentage of fever-free convalescences increases. Such an assertion of necessity implies that there is no such thing as self-infection in the puerperal woman, that the cause of the infection resides not in the patient herself but in her attendants. And while we are not ready as yet to do away entirely with vaginal examinations during labor, still our aim should be to make these examinations as infrequently as an intelligent management of the case will permit.

1. [In the lecture as delivered the author proceeded as follows]: "In order to illustrate more clearly how abdominal palpation should be conducted, I have had one of my patients brought over from the Emergency Lying-in Hospital who is a primipara and within two weeks of full term. The patient, as you see, is placed upon a hard examining table, with her clothes so loosened and arranged that we may readily examine the abdomen from the hips to the free border of the ribs; and then, to render the anterior abdominal walls as lax as possible, we have the woman flex her thighs somewhat. As you see, I take my stand at the woman's right and facing her. I place the palms of my hands over the lower part of the uterus so that the finger-tips meet in the median line, and then, by passing them gently upward, all the time carefully manipulating the uterine contents, we determine whether the long axis of the child lies vertically or obliquely in the uterus, whether the head or breech occupies the fundus, and something regarding the size of the fetus. Having determined that the child lies vertically, that the breech and not the head occupies the fundus, and that the fundus reaches nearly to the ensiform cartilage, we next seek by another manipulation the position of the small parts and the dorsal plane of the fetus. To do this the hands are separated and are placed flat, one on each side of the fundus of the uterus. Then, by passing the contained fetus gently from hand to hand, we determine to which side lies the smooth hard plane of the back, and in which side lie the irregular, movable small parts. We may greatly aid our endeavors by pushing the fetus with one hand firmly up against the palm of the other, thus dislodging the liquor amnii, which may interfere with our palpating. So far we have learned that the head presents, that the back of the child looks to the left of its mother, and that the small parts—namely, the feet—lie to the right in the fundus uteri. The next question to be decided is, Is the head, which we can now feel in the lower part of the uterus, engaged? To determine this we separate the thumb and fingers of either hand as widely as possible, and with the tips of the thumb and middle finger we attempt to seize the presenting part just above the pubes in this manner.

Were this woman a multipara, in all probability we could move the head readily from side to side by this means; but we find when we grasp what appears to be the head just at the pelvic inlet that we are unable to move it from side to side, or, in other words, the head, as is usually the case in a primipara, is engaged in the entrance of the pelvis. Now, to determine the amount of this engagement, we take another position—namely, with our back to the face of the patient. Then, with the tips of the fingers of both hands, we slowly and gradually follow the lower part of the fetus as deeply along the sides of the pelvis as we are able; and you see, by exerting no sudden or jerking movements, after we have partially overcome the resistance of the muscles, that we may pass our fingers to a considerable extent into the pelvis of this gravid woman, and we determine that the head, which we can now distinctly feel, has descended somewhat in the pelvic cavity. Now, what have we determined so far? We have a cephalic presentation, with the back of the child pointing to the left of the mother; and if, moreover, we make use of the stethoscope and find that the fetal heart sounds are most distinct at a point midway between the left anterior superior spine of the ilium and the umbilicus, and if by this last manipulation of forcing the finger-tips alongside of the head into the pelvic cavity we feel certain there is no extension of the head, we have every reason to believe, without any internal examination whatsoever, that we have a vertex presentation to deal with, and that the position is or will be the left occipito-anterior.\*

2. Such abdominal palpation may be carried out, as you have seen me perform it upon this gravid woman, just as well during labor, in the intervals between the pains, as in pregnancy, and while I would not advise you to do away entirely with internal examination during parturition, yet in most instances one examination at the beginning of the first stage, to corroborate our external examination and to determine the condition of the cervix, membranes, and pelvis, and one when the membranes rupture, to satisfy ourselves that there is no prolapse of the cord or an arm, and that the presentation and position are normal, will be, in most instances, quite sufficient. When labor has far enough advanced for us to palpate the vault of the skull, the diagnosis of vertex positions is made from the position and character of the fontanelles and sutures which we are enabled to palpate, and which we become sufficiently familiar with in our biweekly practice with the manikins and in the tenement-house service.

3. After labor is completed we are sometimes called upon, for medico-legal purposes, to express an opinion regarding the presentation in which the child was born. To illustrate this point I have had sent over to-day from the morgue the cadavers of three still-born children, and we notice several points of interest about the conformation of their heads. We usually rely upon two points in making the diagnosis of the presentation after delivery. The first of these is the shape of the child's head, and the second is the position of the caput succedaneum. Where labor has been rapid, where there has been no caput formed, and where there has been little or no molding of the child's

head, as was undoubtedly the case in this cadaver which I hold up, there is absolutely nothing by which we may be enabled to express a positive opinion; and we may say just here that there is nothing in any case in the genital canal of the woman to aid us in making our diagnosis. But when we select this second cadaver we find that the shape of the child's head is distinctly different from the first. On examining it closely, we find that the diameters of the fetal head have been extensively changed from the normal as the result of the resistance and pressure within the parturient canal. You see as we measure them that there is a distinct diminution of the suboccipito-bregmatic, of the occipito-frontal, and the bitemporal diameters, and that there is a compensatory increase in the diameter running from the chin to a point in the vertex situated between the apex of the occipital bone and the large fontanelle. This molding of the head, of course, is rendered possible by the approximating and overlapping of the bones at the sutures and fontanelles, and this particular shape of the head that we have in this fetus is always characteristic of a vertex presentation and an anterior position, and we still further strengthen our opinion by finding that the caput succedaneum is situated along the inner posterior border of the right parietal bone. And, moreover, in this instance we may distinctly see the ecchymotic spots left by the blades of the forceps that were evidently applied over the occipito-mental circumference of the head. We take up another fetal cadaver, and while there is in this instance a somewhat characteristic molding of the head, still it is much less marked than in the second case, and upon a superficial examination we are unable to find anything that resembles a caput succedaneum. But, by incising the scalp from the root of the nose to the posterior extremity of the sagittal suture and pulling back the scalp from the cranium, we find that the tissues that cover the inner and posterior portion of the right parietal bone appear somewhat more tumefied and certainly contain more serum than the corresponding region on the left parietal bone, and hence the diagnosis of vertex presentation is, to say the least, probable.

## IODOFORM INJECTIONS IN LOCAL TUBERCULOSIS.\*

By GEORGE WOOLSEY, M.D.

I HAVE chosen the subject of this paper because of the interest I have taken in this method of treatment after employing it in a limited number of cases.

Furthermore, on account of the comparatively extensive literature in German and French and the very meager notices of it in English and American periodicals, I wanted to find the personal experience or opinion of the members of the Surgical Society as to the value of this method of treating local tuberculosis.

Dr. Senn has deemed it of sufficient interest to read a paper on it before the congress held September, 1892, in Washington, and his final *résumé*, as published in several

\* Read before the New York Surgical Society, April 27, 1892.



medical journals at that time, was very favorable to this method of treatment; but, apart from this, American medical literature is singularly barren on this subject. This is the more remarkable on account of the uniformly good results obtained and reported by German and French surgeons.

Iodoform as an injection in local tuberculosis was first employed in Billroth's clinic by Mikulicz, who reported, in 1881, on two cases of fungous joint disease treated by injections of a twenty-per-cent. solution of iodoform in ether. Since then this treatment has been employed in Billroth's clinic, with some modifications, for over ten years.

Billroth's recommendation alone, when he says "the results have surpassed my keenest expectations," is enough to encourage one to give it a trial.

The use of iodoform injections in surgical tuberculosis has spread widely over Germany and France. Throughout the German clinics this treatment has been tried and praised, in some cases enthusiastically. As the result of experience the method has become modified, and an emulsion in sterilized glycerin, glycerin and water, mucilage or olive oil has been substituted for the solution in ether or alcohol and ether. The French surgeons, however, have mostly kept to the original ether solutions.

I first saw it used in this country as an ether solution in 1885 in the Roosevelt Hospital by Dr. Sands, after reading the report of Verneuil's cases so treated.

The effect of iodoform injections on the pathology of the tubercular process is variously explained. We are all, doubtless, familiar with the good results of iodoform when used on tubercular cases. Thus Tilanus, of Amsterdam, and Wendelstadt, reporting from Trendelenburg's clinic in Bonn, conclude that the antitubercular action of iodoform is beyond doubt and of great value.

Thus, too, Dr. Pilcher has reported the case of two similar tubercular ulcers on the same patient, of which the one treated with iodoform healed in one third of the time taken for the other treated antiseptically.

It has also been found by Stockum that the contents of an abscess treated by iodoform injections are not infective when inoculated in the eye of a rabbit.

We can not, therefore, deny the effect of iodoform in tubercular cases even if we may doubt its theoretical value as a general antiseptic. Bacteriology is of little assistance here, for the conditions are so hard to reproduce that, where clinical results are at variance with experimental results, we must accept the former as the more trustworthy.

In general there are two views as to the mode of action of iodoform on the tubercular process—the one, that it acts directly or specifically; the other view supposes an indirect action. This latter view has been maintained by König, who explains the action as a general antiseptic one, and especially as a drying or desiccating action of the iodoform powder. This drying action favors the primary union of a wound, and opposes a large secretion from the wound surfaces, which secretion would favor the spreading of reinfection over the wound surface from spots where the process had not been entirely removed. This explanation may suffice for cases which we treat as open wounds, but fails to

explain cases of joint disease or abscess which we merely inject, with or without drainage.

Here we must suppose a direct action of the drug on the tubercular process, and in support of this view we have the positive evidence of microscopical examinations. Marchand has observed that the production of giant cells and other elements characteristic of the tubercular process ceased under the influence of iodoform. This allowed healthy granulation to take the place of tubercular granulation.

The observations of Bruns and Nauwerck are the most convincing. They reported on the examination of the wall of tubercular abscesses without treatment by iodoform and after varying periods of such treatment. Eight cases were thus accurately examined. Four layers were distinguished in the abscess wall, of which the inner two only were tubercular, and alone or mostly contained the bacilli. (These layers are an inner fatty and necrotic and an outer tubercular granulation layer.) As the effect of the injections of iodoform it was found that, first, the tubercle bacilli constantly disappear. Further, the growth of cells of the tubercles becomes more sparing and then stops altogether, and an exudation, rich in cells, penetrates and loosens the tubercular tissue, and results in its disappearance. Healthy granulation tissue forms in its place or beneath it, and displaces it. After the disappearance of tubercular tissue the granulation tissue becomes less vascular, exudation ceases, the contents are resorbed, and the wall becomes cicatricial tissue and contracts.

The cause of the above-named changes is the killing of the tubercle bacilli, and this is due not to a caustic or inflammatory destruction, but rather to a specific antitubercle bacillary action of iodoform.\*

This seems to be almost if not quite proof positive of the specific or antibacillary action of iodoform in tubercular cases.

But this is not all. Senger found that impure glycerin gave better results than purified glycerin, the chemical difference being that there was more formic acid in the impure variety. Olive oil, however, has been found almost if not quite as effective a menstruum as glycerin.

(This fact has been adduced by Bruns to prove that it is the iodoform which is the active element and not the ether, alcohol, or glycerin, though Billroth holds the glycerin to be an *important active part* of the mixture.)

But it has been shown that iodoform is only active when split up chemically, and this oxidation or hydration which occurs develops nascent iodine and formic acid. Senger therefore added formic acid or a formate to the emulsions, with a resulting greater inflammatory action and more rapid breaking down in the case of tubercular glands. Finally, he used a solution of a formate, but the results were no better—in fact, scarcely as good.

So it appears likely, it seems to me, that the formic acid

\* Billroth's theory of the action of iodoform on the tubercular process is that it acts by a formative irritation on the smaller blood-vessels, removing the nourishment from the bacilli to the growing cells of the blood-vessel wall. But he admits that the mode of action of iodoform in tubercular cases is still not clear.

is only a part of the active principle, the free nascent iodine also playing an important part.

Riedel raised the question in the German Surgical Congress in 1890 as to what became of the sequestrum, and Krause affirmed in reply that spondylitis often healed permanently under this treatment, in spite of an existing sequestrum.

*Methods.*—There are several methods employed in the use of iodoform as an injection.

Ether was the first substance used as a solvent, with or without alcohol, and the solution varied from five to twenty per cent. in strength, five to ten per cent. being the strength generally used. Of the five-per-cent. strength up to 200 c. c., of the ten-per-cent. up to 50 c. c., were used.

The advantage alleged for the ether solution is the unfolding of the abscess wall by the ether vapor and consequent contact of the solution with all parts. This is more than offset to my mind by its disadvantages, which have been pointed out by many writers. Some of these are ether intoxication, burning pain, gangrene of the abscess wall, vomiting, stranguy, retention. The gangrene of the abscess wall might be especially dangerous in closed psoas abscesses. I saw many of these disadvantages of ether solutions in Dr. Sands's case already mentioned—*i. e.*, ether intoxication, intense pain, gangrene of abscess wall. Ether solutions are still used by many if not most French surgeons, and some of the bad effects of the ether are avoided by Reclus by relieving the pressure of the ether vapor by repeated use of the hypodermic needle, or the ether is allowed to flow out of the trocar after a few minutes.

With the exception of French surgeons, ether solutions of iodoform have been abandoned by most all others in favor of sterilized, freshly prepared emulsions in glycerin, glycerin with water or alcohol (p. e.), olive oil or mucilage, in strengths varying from five to twenty per cent. and in amounts of 5 c. c. to 100 c. c. of a ten-per-cent. strength. Of these menstrua, glycerin seems to be the one most generally useful and advisable, especially as many surgeons, and among them Billroth, attribute some of the good effect to the glycerin. Next to glycerin I should place olive oil, which may be used in some cases where glycerin can not be, and *vice versa*.

*Substitutes.*—There are two substitutes for iodoform which might be mentioned here. One is balsam of Peru, introduced by Landerer, and used pure or in ten per cent. to twenty per cent. emulsion in mucilage, oil, or ether. It has also been used by intravenous injection on the principle that, like cinnabar, it would be deposited where inflammation was present. Balsam of Peru was used on a considerable number and variety of patients with good results, the general condition being especially improved.

Secondly, Lannelongue has reported on the use of a ten-per-cent. solution of chloride of zinc, with fairly good results, in a limited number of cases. He explains its action as a sclerosing one—*i. e.*, by an inflammatory accumulation of cellular elements and the formation of cicatricial tissue. He is uncertain as to the disappearance of the bacilli, and the results are better in the closed non-suppurating cases.

As to *internal treatment*, cod-liver oil, iron, and tonics are indicated in most cases where iodoform injections are.

Schüller strongly recommends at the same time the internal use of guaiacol, alleging as its advantage that the cures are more lasting with its use.

*Technique.*—As to the technique of the injections, it is of the utmost importance to observe thorough antiseptic precaution, and the emulsions should be freshly prepared so as to contain no iodine, and sterilized. The choice lies between a large hypodermic with a large needle and a medium-sized trocar, and many prefer the trocar.

In the case of abscess the contents are generally first evacuated, and then most surgeons wash out the cavity with Thiersch's solution or something similar, and finally the cavity is moderately filled with the iodoform emulsion, up to 100 c. c. being used. This is repeated every one, two, or four weeks.

In the case of a joint, if abscess is present the above-described procedure is adopted; if there is no pus, an injection is made into the cavity of the fungous joint and the fluid is distributed by passive motion and massage. In both cases it is well to introduce the trocar obliquely to obviate leakage after removal.

In the case of a fistula, parenchymatous injections into the walls of the fistulous tract by means of a hypodermic needle are far more effective than mere injection into its lumen.

In the case of other tubercular processes, or in organs not hollow, parenchymatous injections are made unless abscess is present, when they are treated as above described. Fistulae are injected every week with small amounts—2 to 10 c. c. in the wall, joints, and abscesses; every two to four weeks with larger amounts—10 to 50, or even to 100 c. c.

In the case of joints, fixation is only necessary when there is pain—*i. e.*, in the early part of the treatment.

The later injections require more force on account of the cicatricial contraction which has been and is going on. Krause gives very minute directions as to the place of puncture for the various joints of the body (*Archiv für klinische Chirurgie*, vol. xli, p. 113).

Billroth's present method is different from the above and combines operation and injection as follows:

In the case of "cold abscesses" Billroth opens them up freely, scrapes off the abscess membrane with a tampon of iodoform gauze or a large, sharp spoon, stops hemorrhage by tamponing for a time, sutures the wound tightly with sterilized silk (he lays great stress on its sterilization), and injects enough ten-per-cent. glycerin and iodoform emulsion to moderately fill the cavity. He recommends this method especially for caries of the ribs and in the extremities, and in children or adults under thirty. The division of the operation into two days (tamponing the first day) he thinks is objectionable. He adds that *puncture* and injection is still the best method for large congestion abscesses with caries of the vertebrae.

*Cases Applicable.*—The following classes of cases are applicable to this treatment, and in them it has been tried with more or less success:

1. Tubercular abscesses from a focus in bone or soft parts.
2. Tubercular joint disease, with or without abscess.
3. Tubercular fistule.
4. Tubercular epididymitis and tuberculosis of the bladder.
5. Tubercular lymphadenitis.
6. Tubercular empyema, and even tuberculosis of the lung.

As to abscesses, this method is especially applicable to large, deep abscesses not otherwise easily accessible, also when the patients are too feeble for a more severe procedure. It is also indicated to avoid scars. There is less unanimity of opinion as to abscesses near the surface and threatening to rupture. In the early days of this use of iodoform it was thought to be contraindicated in such cases, but not so now, except possibly where ether is used, and even then it is given as Verneuil's experience that healing is often quicker under these conditions when a sinus forms. I have found the formation of a small sinus no hindrance to the complete and speedy healing. It is the experience of Trendelenburg's clinic, in Bonn, that freshly diseased parts, especially if acutely diseased, heal quickest and surest; that children give a better prognosis than adults, and that unaltered skin gives the best chances of success.

On the other hand, Billroth says that the worst and largest abscesses give the best results and fewest recurrences; therefore he is now in favor of active treatment of cold abscesses by this method, because of the danger of amyloid degeneration if they are not treated. His "open method" he also especially recommends in cases with fistule.

Krause treats the severest cases of joint disease as well as the less severe, and both classes of cases show cures; though, as Bruns says as to joint cases, fresh cases without fistule, especially in children, are most favorable.

This method of treatment of empyema has been recommended by Rydygier and Bruns, especially if it be tubercular. Though but few cases of this kind have been so far reported, it seems likely to prove of great service in this worst class of cases of empyema.

*Contraindications and Accidents.*—Most all surgeons who have used this method report that they have seen no cases of iodoform poisoning, and class this treatment as simple, successful, and without danger. Bruns reports iodoform poisoning only once, and not at all in joint cases, where a less amount is always injected. Billroth saw iodoform intoxication very seldom, but advises not to increase the dose above that given above. In general, the dose is small and the surface is not favorable for absorption, so that we would hardly expect iodoform poisoning to occur often; and, in fact, I find no other reports of it, but all others are careful to state that they have seen none. Krause reports one patient who died of acute general military tuberculosis three or four weeks after an abscess was opened and injected, also one patient who died of phthisis, though the knee was improved. Such occasional results are met with in any form of operative treatment.

The only reaction after the injections is a rise in temperature of one to two degrees centigrade. Where it is more than this it has been attributed to imperfect sterilization of the emulsion. A part of the febrile rise has been attributed to the glycerin, but otherwise it has not been satisfactorily accounted for.

The time required by this method of treatment is rather long in actual days or weeks, though, as Fraenkel says, comparatively short. The procedure must generally be more or less often repeated. Some, however, report cures after a single injection, and others in four or five weeks by two to three injections. I have cured one large abscess in four to five weeks by two injections. The general rule, however, is that though the symptom of pain is quickly relieved, the healing process does not begin to show itself even before five to six or even seven to eight weeks, after two to four injections, and then healing goes on rather rapidly, the complete cure requiring sometimes four to five months.

The deduction from this is not to stop treatment too soon, either from discouragement at first or belief that the case is healed later on.

*Results.*—The first effect is a moderate amount of pain, not lasting over twenty-four hours generally. Then there is usually a refilling of the abscess or joint cavity, with more or less tension.

The first sign of improvement is the relief of the pain, especially in joint cases. Then there is almost always a decided improvement in the general condition. Thus I have seen stoppage of night sweats, disappearance of hectic fever, improvement of appetite, and gain of flesh and strength.

The abscess or joint cavity refills with a thinner, browner pus, which generally requires a second or third tapping and injection; but after a varying interval of two to eight weeks there is a gradual or rapid shrinkage until only a certain amount of induration remains. Motion may return completely in a joint, though in the hip there is finally generally an ankylosis. In other joints many cases of complete restoration of motion have been reported.

The results are remarkable, especially as they occur in adults as well as in children, and in cases where otherwise an amputation would have been the only operative treatment.

The results vary considerably among the various classes of cases to which the treatment is applicable.

Abscesses give by far the best results. Thus Fraenkel reports twenty cases with eighteen cures. Billroth gives sixty-three per cent. cured, and Trendelenburg finds a marked result in sixty-eight per cent. of cases. Bruns reports ten cures out of twelve abscesses from spinal caries, and twenty-four cures in thirty-five cases, whereas by former methods the statistics were thirty-five cures in a hundred and one cases. Finally, Bruns's most complete statistics show eighty per cent. of cures in cold abscesses.

Cases of fistule are more obstinate and generally take longer. Cases of tubercular joint disease show a smaller percentage of cures than do the abscesses, yet the results here are most remarkable, considering the kind of cases susceptible of cure and the results of other forms of treatment.



Bruns reports fifty per cent. of cures in all joint cases, and, by a re-examination of these cases, the cures are found to be permanent. The prognosis varies with the different joints. Thus Krause reports cures as follows: Wrists, sixty per cent.; knees, forty-one per cent.; hip, thirty per cent.; ankle, sixteen per cent.; improvement in all cases. Trendelenburg's figures are sixty per cent. of wrists, thirty-seven per cent. of elbows, thirty-three per cent. of knees and ankles.

It is thus seen that the best results are obtained in the wrist joint, many cases being reported cured which would otherwise have been subjected to amputation. Next to the wrist, the knee and elbow show the best results and the ankle the worst.

My personal experience with this method of treatment is briefly as follows. The cases, with two or three exceptions, were treated under my care in the wards of Bellevue Hospital:

CLASS I. *Abscesses*.—1. G. W. M., aged thirteen. Large abscess at upper end of the thigh, anterior and inner aspect. Co-chaire, tapping, cavity washed out with Thiersch's solution, ten drachms of a ten-per-cent. emulsion of iodoform in glycerin injected. Two weeks later, same repeated, with olive-oil emulsion. Result, cure in five to six weeks.

2. Psos abscess on both sides. F. J. L., aged twenty-six. Abscesses opened and drained; injections frequently repeated. In hospital two months. Result, cure. The patient was seen fifteen months after discharge from hospital; abscesses have remained healed.

3. Double psos abscess. J. M., aged twenty-five. Abscesses opened and drained for five months before injections were used. After use of injections there was marked improvement, but before being completely cured he left the hospital against advice. Result, improvement.

CLASS II. *Joint Cases*.—1. C. S., aged two. Hip joint, with abscess of large size. The patient was very feeble and anæmic. Abscess aspirated and injected; injections repeated every one to two weeks. A fistula formed. Patient under treatment nine to ten weeks. Result, cure. Patient not seen since, so can not settle the question of ankylosis.

2. Boy, aged about nine. Hip-joint disease of one year's duration; no abscess; more or less pain; uses a cane. Two to three injections at intervals of two to three weeks. Result, improvement; pain relieved; can walk somewhat without a cane.

3. Girl, aged about fifteen. Hip joint; old case; wearing an apparatus. Sinus some distance down on outer and posterior aspect of the thigh. Two injections at intervals of two weeks. Result, improvement; sinus temporarily healed. The patient withdrew from treatment.

4. A. McN., aged about twenty. Elbow shows spindle-shaped white swelling of tubercular joint disease. Fixation at first; injections every week or ten days. In hospital about six weeks. Result, improvement; no pain; little or no swelling; good motion. Treatment not completed.

5. U., aged about eighteen. Ankle. History dates back six months or more. Tubercular periostitis in lower third of tibia. Pus in joint. Joint aspirated and injected every two weeks for eight to ten weeks. Improvement first shown at six to seven weeks. The patient finally left before treatment was complete. Result, improvement; almost cure of ankle; no pain; little swelling; no fluctuation. Periostitis only just began to be treated.

6. J. M., aged eight. Knee. No abscess; little effusion. Injections into joint cavity. Result, process stationary; some flexion of the knee existed and still remains; no pain.

CLASS III. *Fistulae*.—1. Ischio-rectal abscess and fistula. W. A. S., aged thirty-six. Bad case. Cavities extend up on both sides of the rectum five and six inches. Treatment: Free opening; fistula cut; abscess membrane scraped with sharp spoon; iodoform and glycerin injected every one to two days through catheter introduced into wound. Result: Discharged cured in three weeks, which seems a remarkable result considering the extent of the process.

2. Wrist joint, joint previously excised, one sinus leading to soft bone. Two injections; sinus healed in from three to four weeks.

3. Upper part of calf, fistulae in soft parts. Injected every week for five or six weeks. Result, cure.

4. Posterior lumbar region; sinus resulting from operation for abscess for which no cause was found. Injections parenchymatously. Result, improvement, especially in general condition; appetite improved; night sweats and hectic stopped; flesh and strength gained.

5. Miss X., aged twenty-five. Tuberculosis of breast; sinuses in axilla. Operation. Breast and axillary contents removed. Sinus found leading from axilla to supraclavicular glands. Sinus scraped and injected. Injections repeated through the tube brought out of the wound. Result, complete cure in about three weeks.

6. E. F., aged twenty-six. Ankle. Operation; sinus remains. Cured by injections in sinus and parenchymatously.

7. T. M., aged twenty-eight. Shoulder. Excision; two fistulae remain. Cured by scraping, combined with injections of iodoform in sinus and parenchymatously.

CLASS IV. *Epididymitis and Bladder*.—1. J. McC., aged twenty-seven. Double tubercular epididymitis of some time standing. Scraping operation had previously been done. Two fistulae remain; both testicles enlarged. Injection into sinuses and parenchymatously quite frequently, i. e., twice a week, for some weeks. Result, one cured and one improved, and was later on removed. The patient since then has remained entirely well.

2. Unilateral tubercular epididymitis. T. M., aged twenty-eight. The same patient whose shoulder was excised and sinuses cured, developed a tubercular epididymitis. Injection of iodoform in olive oil. This was quickly followed by pain in the chest and slight hæmoptysis. It seemed possible if not probable that this was due to the injection entering a vein and a small fatty embolism occurring in the lung. Consequently, I think olive-oil emulsions are contraindicated for parenchymatous injections. One or two further injections with glycerin emulsion were used. Result, process stopped; cure.

3. Cystitis, probably tubercular. Tubercular history, and patient had had tubercular epididymitis. Very frequent micturition; pain. No treatment or injections or irrigations relieved him. Bladder washed out with Thiersch's solution, after which emulsion of iodoform in olive oil was injected and held as long as possible. This repeated every day. In two weeks patient could hold his urine two to three hours and has no pain, sleeps well, and is gaining flesh and strength. Treatment continued some little time longer. Result, cure.

I have made no attempt to arrange the above-given cases statistically, as they are too few in number, and in many the treatment was never completed.

In general, I can say that I have been quite well satisfied with the results of this method of treatment.

Failures or partial failures have been generally due to

the fact that either the treatment was not carried out thoroughly or that the patient insisted on leaving before the cure was complete, in many cases being satisfied with the improvement. This would partly account for the difference between our statistics and those from German clinics, where the patients are under more control.

Finally, as the result of my limited experience, I can heartily recommend that injections of iodoform emulsions be given a trial in all cases of local tuberculosis in which this method of treatment is applicable. Failure only adds to the advisability of an operation.

117 EAST THIRTY-SIXTH STREET.

## APPENDICITIS.\*

By HAL C. WYMAN, M. So., M. D.,

PROFESSOR OF SURGERY IN  
THE MICHIGAN COLLEGE OF MEDICINE AND SURGERY, DETROIT.

IN the course of one of those delightful little *tête-à-têtes* that sometimes take place after an adjourned meeting of a medical association, a gentleman who had spent many years in the practice of medicine said to me, "Doctor, how is it that you surgeons find so many cases of what you call 'appendicitis' to operate upon?" I answered that I did not know that we found any more cases nowadays than formerly existed. "But," he said, "I have practiced medicine for forty years, have been constantly busy during those years, and have seen a great deal of sickness. I have never encountered a case of appendicitis requiring any surgical operation." I answered, "That is probably because you fail to recognize the lesion, and attribute the malady to some other cause." I asked if he had not seen a great many cases of death resulting from inflammation of the bowels, and he replied that he had seen a great many cases of fatal inflammation of the bowels in which no little difficulty was had in determining the cause. He had seen cases which he believed were due to rheumatism; cases which were due to no apparent cause—quite a number of them. I asked if he had not occasionally encountered cases in which abscesses made their appearance in the region of the cæcum, requiring opening. Yes, he said, he had operated upon three or four cases of such abscesses—cases which he looked upon as perityphlitis. And he said further that writers of his time, like Rokitsansky on pathological anatomy, like Gross and Eberle and Flint and Cullen and Brown, had very little to say about diseases of the appendix vermiformis. Rokitsansky, in his description of the pathology of the alimentary canal, distinctly states that the appendix vermiformis is not infrequently the seat of inflammatory processes, the result of the presence of foreign bodies in it. "But," the gentleman continued, "I have never encountered them and I do not see why there should be such an apparent epidemic of appendicitis during the last few years." Other gentlemen who were present and who had been many years in practice spoke in pretty much the same terms, and evidently seemed to think that appendicitis was

a sort of fad that had taken possession of the surgical side of the profession, and was leading men to perform operations that were unnecessary. One gentleman spoke about the "medical" treatment of appendicitis, and stated that no doubt if medical treatment was begun early and properly carried out, a great many of the patients could be saved; that he had seen a good many cases of tenderness and inflammation in the region of the appendix vermiformis which had disappeared after a rest in bed and an exhibition of sufficient quantities of opium or morphine to control the pain, with due attention to the bowels. Certainly the cases that had come under his observation were not cases requiring operation. A younger member of the party said: "The question of appendicitis with the older members of the profession is simply this: cases that might be relieved by operation die, and the mortality is attributed to some other disease when medical treatment fails."

No doubt many of those who listen to me have heard conversations similar to that I have just recited, and the reason for it is that a pathological condition has been confounded with an operative procedure. There is nothing new in the history of appendicitis. Early surgical writers upon fecal abscesses define clearly cases of appendicitis, and speak of opening abscesses in the region of the appendix, from which foreign bodies, such as cherry pits, seeds of fruit, etc., have been removed. But they say nothing about the removal of the appendix; and this operation—which is of recent origin—of the removal of this apparently useless member of the human anatomy has made the confusion in professional minds.

The development of antiseptic surgery has given a great impetus to operative procedures within the abdominal cavity, and this has no doubt had much to do with determining the present surgical aspect of appendicitis. Previous to this advance, while the different causes of peritonitis were carefully described by surgical writers, still the almost uniformly fatal results of operations for the relief of any of them led practitioners to pursue the "medical" or "do-nothing" course generally. Little care was taken by the average physician to make a differential diagnosis in a case of peritonitis and determine the source of the lesion. The tendency was to look upon it as an idiopathic malady to be treated with opium as a splint for the bowels. Beyond this practice treatment rarely went. But with the knowledge that the peritoneum could be explored without increased danger of a fatal termination of an attack of peritonitis, the profession was not slow to differentiate in all cases, ignoring the idea of an idiopathic origin for the disease, and seeking to find the actual lesion.

Naturally, lesions of the appendix were found not infrequently to be a cause of general peritonitis; and then, the cause being known, its removal was suggested.

As matters stand to-day in relation to cases of "inflammation of the bowels"—using the term in the popular sense—the first thing the medical attendant does is to ascertain the cause of the inflammation; and, when the lesion is limited to the right side, as indicated by tenderness and recognition of an unusual tumefaction in the region of the appendix, surgical procedures are entertained. The older

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members of the profession, as these facts are being made clear to them, are by no means dilatory in recognizing lesions as they occur, and treating them in the best possible manner.

It is impossible to make a set of rules which will govern all cases of appendicitis. No doubt the endeavors to do this are another source of the confusion which exists in some professional minds, as indicated in the dialogue at the commencement of this paper. Every case must stand by itself, and he alone is competent to make a diagnosis who is thoroughly familiar with the anatomy of the organs included within the peritoneal cavity, with their relations to the abdominal parietes, and with the changes which these organs undergo in consequence of disease. A few cases which have come under my observation may illustrate this point.

I was called one night last winter to see a boy, fifteen years old, who had been sick for a week. His physician told me that the trouble began after a strain received in jumping from a wagon in motion, and that he first complained of pain in the neighborhood of the navel. That the pain increased steadily for four days. That the abdomen became tympanitic and the bowels confined. He was obliged to use morphine to relieve the suffering, which was constant and required large doses to afford any relief. On the fourth day the pain suddenly abated, and the doctor endeavored to promote the action of the bowels by the use of enemas and cathartics. The distention of the abdomen, however, continued and increased. The pulse became exceedingly small and rapid, and vomiting was added to the other symptoms. Gradually it became apparent that the patient was verging on collapse, and when I saw him he was clearly in a condition which offered very little hope of success by any treatment. A careful physical examination showed the region of the abdomen, internal to and above the anterior superior spine of the ilium, markedly harder than usual, but in every part there was distinct tympanitic resonance on percussion. A cold, clammy sweat stood upon the patient, and he was vomiting peculiar, *fœtid* ejecta, which were stercoraceous in character. The pulse was not so rapid or so feeble as it had been three days before. His mind was clear, and he told me distinctly how his injury occurred, and where he first felt pain; and furthermore stated that he had had two similar attacks within the past three years, which had disappeared after his mother had applied a large poultice and had given him a dose of paregoric. No movement had taken place in this patient's bowels since his first attack of pain, but the first few days of constipation were supposed to be due to the administration of anodynes. It was apparent that unless some relief could be given to the continuity of the alimentary canal, the patient must soon perish in consequence of the obstruction. I had him anesthetized, prepared his abdomen with antiseptics, and made an incision reaching from the navel to the symphysis pubis, first having thoroughly emptied the bladder with a catheter. Through this opening the peritoneum was reached and the cavity opened. A quantity of purulent, serous fluid, mixed with fecal matter, ran from the wound. Gently insinuating my index finger into the peritoneal cavity, adhesions were encountered in the region of the appendix. The nozzle of a syringe was introduced and the peritoneal cavity washed out until no more fecal or purulent matter ran from the wound. Then the examination was continued, and an opening was found in the lower part of the cæcum which freely admitted my index finger. This exploration was made with the least possible dis-

turbance of the adhesions existing between the abdominal viscera. To one side of this opening was plainly felt a ragged mass of tissue, measuring about two inches in length. It was clear, then, that the case was one primarily of inflammation of the appendix vermiformis, or of the cæcum in close proximity to it, and that, in consequence of this inflammation, ulceration and perforation had taken place. The abdominal wound was enlarged about an inch and a half, passing to the right of the umbilicus, to give better access to the region of the appendix. The cæcum was gently separated from restraining adhesions, the ragged appendix was removed, and the opening in the bowel closed with continued catgut sutures, taking care to bring the opposite surfaces of the peritonæum together, and to turn all mucous surfaces into the cavity of the cæcum. The patient rallied from the operation and did well for twenty-four hours, when he suddenly collapsed and died. An autopsy revealed a general peritonitis. After the operation there was no movement of the bowels, nor were any firm adhesions occluding the continuity of the canal discovered at the autopsy.

Another case with a somewhat different history came under my observation a few weeks later. I was called to see a man in the western part of the city, whom the messenger said had been sick for a week. That he had been having a great deal of stomach-ache. That he had consulted a physician at his office several times, but the medicine did not appear to do him any good, and he had been trying home remedies since. His wife had been using poultices and injections, but still the pain kept up. He had had similar attacks before, but never one so severe. Dr. D. L. Dakin, of Detroit, accompanied me to the bedside of the patient, where we found a man, thirty years of age, a laborer by occupation, suffering from fever, with a temperature of 103° F., with tongue furred, and with pain in the right side of the abdomen. He repeated the history as above recited. A physical examination of the abdomen revealed the right side practically immobile. A firm, slightly yielding mass could be felt, reaching from the right superior spine of the ilium to within an inch of the umbilicus, and this mass was very tender on pressure. The man thought his trouble was caused by lifting; but there was no distinct and reliable history of the origin of the pain. His pulse was 120, his respiration 26; he had had no chills, but his fever had continued steadily all the week, so his wife, who had been in constant attendance upon him, said. His bowels had moved two or three times every day in consequence of the medicine which had been given him. On these facts we decided that the case was one of appendicitis, with suppuration. After putting the man under the influence of chloroform, we made an incision through the abdominal wall, over the most prominent part of the tumor, which was about an inch internal to the right anterior superior spinous process of the ilium, and an inch and a half above it. This incision was cautiously carried downward until the peritoneum was reached, when a quantity of sero sanguineous fluid oozed from the peritoneal fat. Then we made an incision through the peritonæum, penetrating the doughy mass heretofore described. A quantity of pus of the most *fœtid* character was discharged. The opening was carefully enlarged, and my finger explored an abscess cavity reaching from below the brim of the pelvis upward as far as the lower border of the right lobe of the liver. Nowhere in this cavity could a free appendix be felt; but in its deeper portion the finger detected an embossed ridge which contained several small perforations, and from which small quantities of fecal matter were discharging, and which was, I believe, the appendix. The cavity was now packed carefully with iodoform gauze, particular pains being taken to compress the appendix; an antiseptic dressing was applied over all and held in place by a bandage over the abdomen. The next day the patient's fever had en-



tirely disappeared, the pain likewise was gone, and he expressed himself as feeling very much improved. The dressings were not disturbed until a week after the operation, when the gauze was found slightly saturated with purulent fluid. A new dressing was then applied. Three weeks after the operation the patient had so far recovered that only a slight granulating depression existed at the site of the incision. The abscess cavity had filled with granulation tissue, and five weeks after the operation the patient expressed himself as entirely well, the wound having healed. I have seen him frequently since, and he works every day at his occupation as a helper in a lumber yard, lifting and straining as occasion requires. He says he feels perfectly well.

Another case, the foreign body removed from which I have here to-day to show you, was that of a young man twenty-three years of age, who was employed in electrical work. After lifting heavily in aiding some men in putting a large dynamo on a truck, he felt a pain in his right inguinal region, which continued sharp—lancinating in character—so that he was unable to work the rest of the afternoon and went to his room. The next day he called a physician, who recognized a point of great tenderness about midway of a line drawn from the umbilicus to the anterior spine of the ilium. The patient had fever, his bowels moved regularly, but he did not get better after anodynes were administered. A week elapsed before I was called in consultation by my colleagues, Dr. Bell and Dr. Meddough, of Detroit. Then we found a swelling deep in the right inguinal region, reaching almost to the umbilicus and nearly to the inferior border of the last rib. There was a marked bulging of the right lumbar region, and the whole abdomen was exceedingly tender. So severe was the suffering and so great the tension in the right side that the patient lay on his back in bed with the limbs widely separated. He could not bear to have his feet placed side by side, so great was the pain the action caused him. He was given chloroform, and I made an incision over the most prominent part of the tumor, which was immediately above the spine of the ilium, and, after a deep dissection of the abdominal wall, I reached the peritonæum, which I incised freely, evacuating a large quantity of pus mixed with fecal matter. Introducing my finger, I explored carefully the cavity in the region where the appendix should be found, and discovered a date seed measuring three quarters of an inch in its longest diameter, by a quarter of an inch in its greatest transverse diameter and a little less in its smallest diameter. This was partially imbedded in inflamed tissue. After its removal I made a careful search to find the opening from which it had escaped, but failed. A drainage-tube was inserted in the wound and the cavity loosely packed with iodoform gauze. The patient continued to suffer from fever for ten days, but his pain was entirely relieved. Then the fever began to subside, he began to eat, his bowels moved regularly every day, and he made an uninterrupted recovery. The wound granulated perfectly without interfering in any way with the functions of the alimentary canal.

A case presenting a somewhat characteristic history is that of a young girl, and the specimen from her case I have with me. She was employed in one of the factories in the city, was fifteen years of age, had always enjoyed good health, with the exception of occasional attacks of colic, which were supposed by her mother to be due to some irregularity in the development of her menstrual functions. She had been somewhat irregular in that respect, but had been well enough to perform her duties comfortably. She had been sick a week when I was called to her case by Dr. Le Blanc, of Detroit. Her attack started soon after lifting a barrel which contained some scraps of iron; then she had pain in the abdomen, which gradually

increased—so much so that she was obliged to go to her home and bed. Her mother made hot applications, thinking the pain indicated the approach of catamenia, and gave her hot whisky and water to drink. This provoked vomiting. The vomiting and pain continued, unrelieved by the administrations of the mother, and Dr. Le Blanc was called. He made a careful examination of the abdomen, failed to find any point more tender than other points, could detect no difference in the deep structures of the abdomen between the two sides, and prescribed for the nausea. The cathartics which had been given had acted freely, and there were frequent passages of gas from the bowels. There were no evidences of obstruction of the bowels. The matter ejected from the stomach was of a simple bilious character and contained much mucus, but the morphine which the doctor administered hypodermically, while it relieved the pain, did not stop the vomiting, and the patient gradually grew weaker. When I was called in consultation I made a very careful bimanual examination of the contents of the pelvis and abdomen, but failed to detect any localizing condition. This was done with the patient under the influence of an anæsthetic, which was made necessary by the general tenderness of the abdomen. She had, during the preceding twenty-four hours, been obliged to micturate much more frequently than natural, but the urine contained no excess of mucus, and it was apparent that the irritability of the bladder was due to some exciting process within the peritoneal cavity. Believing, from the fact that the symptoms developed immediately after a strain, that there was a foreign body in some part of the alimentary canal which the strain had disturbed and which had caused a perforation, I opened the abdomen by a section in the median line, running from the umbilicus to the symphysis pubis. The peritonæum appeared natural on its external aspect, but, on dividing it, a quantity of serous, purulent matter was discharged. A few coils of intestine which rolled into the wound were deeply dyed a dark-red color. Sweeping the finger about in the peritoneal cavity, no adhesions were discovered at first, but, on exploring more cautiously in the region of the appendix, a slight adhesion was detected between that organ and a loop of small intestine. Retractors were introduced into the wound, which was continued upward about an inch to give better access to the region of the appendix, and the examination with the finger was continued. The appendix was found to contain a firm, solid body. The adhesions between the appendix and the loop of intestine were very easily separated, and did not occupy over a quarter of an inch in extent. Aside from this the appendix was entirely free in the peritoneal cavity. It was, with the cæcum, brought up into the wound. A catgut ligature was carried about its base, and it was removed with scissors, with the foreign body in it, precisely as you see the specimen in the bottle which I submit for your inspection. With my eye I could detect no perforation, but there were several dark spots like fly specks upon its lower surface. The mesentery of the appendix was deeply congested, but no perforations could be detected in it. The abdominal cavity was washed out, a drainage-tube was inserted, and the abdominal wall closed. The patient, however, did not improve materially; nausea kept up, and she died in collapse twenty-four hours after the operation. The autopsy revealed no obstruction to the continuity of the canal, nor were there any adhesions to be found in any part of the peritoneal cavity, nor was there any plastic lymph thrown out; only a deep-red congestion of the intestinal peritonæum in the region of the appendix was discovered. Death was evidently the result of absorption into the general circulation of poisons which entered by way of the peritoneal cavity. I took the specimen to my office and examined it more minutely. I poured into its cavity, around the foreign body, about half a

drachm of mercury. This fluid at once made its appearance at the small spots like fly-specks heretofore described, and quickly ran out of the appendix. The cavity of this organ had been ulcerated by the presence of the foreign body, which is evidently a peanut which had been swallowed without mastication. Through the openings in this specimen of diseased appendix I have thrust broom straws to indicate their situation. It is probable that the foreign body set up a simple inflammation of the mucous lining of the appendix first, and those inflammatory processes incident thereto extended gradually to the peritoneal investment of the organ, and the pressure incident to straining in lifting was the exciting cause of the perforations, through which small quantities of fecal matter or intestinal gases passed freely into the peritoneal cavity, causing the changes already described, and the constitutional phenomena indicated by vomiting, subnormal temperature, rapid pulse, and the patient's death.

I have recited these cases for the purpose of showing simply one set of features which may accompany this peculiar disease. I could, were it not for wearying you, relate yet other cases which would no doubt prove equally interesting, but these suffice to show that the disease known as appendicitis may be characterized by a great diversity of phenomena, all of which indicate clearly the necessity for early surgical interference.

I do not believe that it is good surgery to remove the appendix when it is encountered in a suppurating cavity to which it is so firmly adherent that its removal can not be accomplished without jeopardizing the integrity of that portion of the peritoneal cavity which has not been infected by inflammation-producing organisms. Nor do I think that it would be good surgery to refuse to remove an appendix that is free and practically insure the patient—in case of a successful issue to the operation—from the dangers of a subsequent fecal fistula. I have, in other instances, had some experience in operating under the idea that the appendix should be removed in all cases, and have, in accordance with that doctrine, broken down adhesions which interfered with the removal of the diseased organ; but the uniformly fatal results in those cases have led me to adopt the more conservative plan indicated by the treatment followed in the cases recited in this paper.

An objection to the so-called medical treatment is found in the great danger of recurrent attacks. Children are particularly prone to relapse.

The danger in appendicitis may be summarized as follows: (1) General peritonitis; (2) fecal infection by the absorption of fecal gas, etc., from the peritoneum; (3) fecal fistula.

The surgical treatment should be undertaken just as soon as a diagnosis can be made.

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**Meharry Medical College.**—The seventeenth annual commencement of Meharry Medical Department, Central Tennessee College, Nashville, was held at the Gospel Tabernacle on the 7th instant, in the presence of an audience of more than three thousand people. There were thirty-six graduates in medicine, two in dentistry, and six in pharmacy. During the past session a hundred and twenty students in medicine, seven in dentistry, and twenty-one in pharmacy were enrolled. About half the educated colored physicians of the Southern States are said to be graduates of this institution.

## THE VALUE OF THE CENTRIFUGAL APPARATUS FOR DIAGNOSTIC PURPOSES.

By FREDERIC E. SONDERN, M.D.,

ATTENDING PHYSICIAN TO OUT-PATIENT DEPARTMENT, MOUNT SINAI HOSPITAL.

CENTRIFUGAL force, used for the special purpose of obtaining sediments from urine, sputum, and pathological fluids in general, was first described by Medical Candidate Thor Stenbeck,\* and immediately promised to be an important adjunct to a thorough as well as speedy examination of deposits. The apparatus now in the shops differs but little from that originally described in minute detail by Stenbeck, and consists briefly of a small metal plate from which two or more receptacles are suspended perpendicularly for the purpose of holding the glass tubes containing the fluid to be examined, and so hinged that when the apparatus is in motion they assume a horizontal position; the whole is rapidly rotated by a series of cog-wheels moved by an electric motor, hand or foot power. By hand power a speed of twelve hundred to fifteen hundred revolutions a minute may be attained; by motor, three thousand or more; in the former, five to fifteen minutes, in the latter, two to three minutes, will suffice to obtain the desired sediment in most instances.

It was first brought to my attention by Dr. Willy Meyer† a year ago, and since then I have had the opportunity of using it on upward of two hundred different specimens in the laboratory of Professor A. Jacobi as well as in my own, and in most instances comparing the results with those obtained by the usual method of sedimentation in a conical glass, and my opinions are based on the outcome of these examinations. As I have since read, the apparatus has been demonstrated by Dr. Freeborn‡ and subsequently by Dr. Gerster.\*

The rapidity with which it enables the making of an accurate examination causes it to be of singular utility to the consulting practitioner, and it necessarily yields a richer and clearer microscopical picture, as fermentation has not had time to set in. These two factors—the time required, and the consequent changes—are the principal objections to the old method of procedure.

It is true that in the examination of ordinary nephritic urine, when time is no object and fermentative changes are slow to occur, the old method of sedimentation is, as a rule, satisfactory, and in these specimens the only advantages in the deposit obtained by the centrifuge are that it is richer in the quantity of elements sought for, and, as they are fresh, it presents them in a clearer and comparatively unchanged condition; this is especially the case with varieties of epithelial cells.

In cases of renal disease, when at times only exceedingly few casts are to be found in the urine, as in some of the forms of chronic Bright's disease and occasionally in amy-

\* Stenbeck. *Hygiea*, Stockholm, 1891, 40-51.

† Willy Meyer. *N. Y. Med. Jour.*, January 30, 1892.

‡ *Medical Record*, February 27, 1892.

\* *Ibid.*, September 10, 1892.

loid degeneration of the kidney, especially when these elements are caught and held in the mucous cloud suspended in the middle of the conical glass, this new method offers marked advantages. It has repeatedly been my experience that three minutes have sufficed to produce a deposit comparatively rich in renal elements, whereas the same urine put into a proper glass and specimens carefully removed with a pipette at any time from one to forty-eight hours later, have failed to show even one cast. If in the latter case they failed to deposit, or underwent disintegration owing to the presence of peptone, so frequently found in such specimens, I am unable to say.

The rapid method of sedimentation is of particular service in specimens of urine which, by virtue of their character, almost immediately undergo fermentative changes, even started at times before they leave the body, and is very frequently conducive to clearing up the diagnosis of otherwise obscure genito-urinary disorders. In these specimens, on standing, as by the old method, there is not only a coagulation of the fibrin entangling many of the elements sought for, but also the development of bacteria, various fungi, the precipitation of phosphate or urate salts, which tend to cover these elements, to say nothing of the total disintegration of some, the maceration and consequent change other more delicate structures undergo, which would certainly make a diagnosis of their exact nature and the possible determination of their source difficult and misleading and probably impossible. It is oftentimes difficult to form a clear opinion of elements which have been exposed to a mild alkaline fermentation in the bladder for a short time, and it is therefore easily understood how much greater is the difficulty when this specimen is set aside in a glass certainly for a number of hours to deposit its sediment before coming under the microscope. Many thorough trials, comparing the results obtained by both procedures, are found convincing that by the new method, used at once or soon after the urine is voided, many cases of pyelitis, malignant growths, etc., can be distinguished by the character of the epithelium and cellular structures in general present, which can not be done with any degree of certainty after these elements have been exposed to the changes due to a rapid fermentation of the specimen on standing.

In cases of hæmaturia and hæmoglobinuria the apparatus is applicable. In the former the cells are thrown down very quickly, and when large quantities are present the method is applied to the remaining decanted, partly cleared urine for a second time, during which the lighter elements looked for are deposited. When blood-coloring matter only is present, the use of the centrifuge does not change the color of the specimen. The process is, however, particularly adapted to those cases in which there are only minute quantities of blood, and I have in a number of instances succeeded in finding small numbers of cells where the guaiac test was employed with a negative result, and none were found in the sediment obtained in the usual manner. Litten\* has made similar observations on specimens in which both the spectroscopic and Heller's test were

negative. In cases of oxaluria, Litten\* has used the apparatus to determine the daily variations in the amount of this deposit before fermentation and consequent change of reaction, solubility, etc., could set in, which would occur on standing. I have not had the opportunity of employing the method for this purpose and testing its efficacy by comparing the results with those of quantitative chemical analysis.

The method in question is also of decided utility in the demonstration of tubercle bacilli, especially in those specimens of sputum, urine, pleural exudations, etc., in which there are but few to be found. The well-known method for examining sputum for bacilli is quickly executed, and in the majority of instances is perfectly satisfactory. Specimens in which tedious examinations over many prepared slides reveal single bacilli, few and far between, are, however, not rare, and it was for these that Biedert† and v. Sehlen‡ recommended their respective methods of sedimentation. The latter, which in my opinion is preferable, is as follows: Add to a given quantity of the fluid to be examined a quarter to half its volume of the borax-boric-acid solution (twelve-per-cent. solution of borax in hot distilled water; on stirring, add a like quantity of boric acid; filter while hot). This mixture of suspected fluid and solution is well agitated and then put aside in a conical glass for four days.

The advantage of the centrifuge is that the same deposit of bacilli from the described mixture can be obtained in about as many minutes—certainly a great gain of time. In two cases I have found bacilli by this combined use of Biedert's method and the centrifuge which could not be demonstrated by the same method of sedimentation in the conical glass. V. Jaksch# has described the same advantage.

The urine in cases of tubercular disease of the genito-urinary tract oftentimes contains many bacilli, and a sediment obtained by the ordinary method usually reveals their presence; in these cases the sediment by centrifuge only shows a quantitative difference. It is, however, a well-known fact that in some specimens of urine containing but few bacilli and much pus, or depositing large quantities of salts by fermentative change on standing, as well as in clear specimens, especially those of high specific gravity, these few bacilli are frequently overlooked, and here again the combination of v. Sehlen's method and the centrifuge is of singular value, and will plainly reveal them if present, which is certainly not always the case when centrifugal force is not employed. In pleuritic exudations the rapid sedimentation is of decided service in searching for tubercle bacilli or pneumococci; the advantages it has here offered are quantitative difference, rapidity, and lack of disturbing elements, such as micro-organisms developed during standing. Litten|| has examined specimens of this kind so rich in fibrin that coagulation of the entire fluid occurred in a

\* Litten. *Loc. cit.*

† Biedert. *Deut. kl. Wochenschrift*, 1886, 42, 43.

‡ V. Sehlen. *Opth. j. hist. u. Parasitenkunde*, 1888, 22, 23.

# V. Jaksch. *Prager. med. Wochens.*, 1891, 18.

|| Litten. *Loc. cit.*

\* Litten. *Deutsche. kl. Wochenschrift*, 1891, 23.



very short time, and when a sediment could not be obtained unless the rapid method was employed.

In numerous specimens of cystic fluids of different kinds, when small quantities only were aspirated for examination, the centrifuge has yielded sediments far richer in the elements looked for than could otherwise be obtained, and has repeatedly justified my conclusions, which would have been doubtful at best, and frequently impossible, had the old method only been used.

Unprejudiced comparative tests with the apparatus in question yield results fully sustained by those of Litten,\* v. Fritsch,† and v. Jaksch,‡ and it is difficult to understand why Albu\* should maintain that diagnosis is not facilitated by the process. Perhaps longer continued investigations with specimens to which the method is particularly applicable will alter his opinion.

128 WEST THIRTY-FOURTH STREET.

## PAPILOMATOUS GROWTHS OF THE PALATAL ARCHES AND UVULA.

By CLINTON WAGNER, M. D.,

SENIOR SURGEON TO THE METROPOLITAN THROAT HOSPITAL, NEW YORK.

PAPILOMATOUS growths of the palatal arches and uvula are not infrequently overlooked in a careless or too cursory examination of the fauces. The patient will complain of symptoms which are present in ordinary catarrhal inflammation of the pharynx and larynx—viz., a frequent desire to clear the throat, at times a tickling sensation, which is followed by a short, hacking cough, rendering a prolonged or continuous use of the voice difficult, and in some cases impossible. An examination with the laryngoscope will reveal nothing to account for the symptoms; the cords will appear healthy and perfectly normal in their action, and the pharynx also healthy, excepting, perhaps, a slight hyperæmia.

A further examination, if the symptoms are caused by the presence of a growth, will disclose a small wart-like body at the junction of one of the pillars, usually the posterior, with the soft palate. At first glance it may be mistaken for thickening of the mucous membrane, or an enlarged follicle, but, upon touching it with the probe, it may be dislodged, and will be seen to be attached by a pedicle varying from a quarter of an inch to an inch in length.

They are sometimes attached to or a little above the extreme point of the uvula, to which they cling very closely, but, when moved by the probe, the pedicle will be seen.

In one case, that of a well-known actress of this city, I could discover nothing at first glance to account for the constant feeling of irritation she experienced in her throat, especially while performing her part on the stage. With the rhinoscope I detected a slight prominence on the posterior surface of the uvula. Suspecting a growth of the character under consideration, I moved it with the probe and dislodged it; the pedicle was about a third of an inch in length.

Another case, somewhat similar, was that of a gentleman from a Southern State, a presiding judge. He stated that it was almost impossible for him to deliver a charge from the bench in consequence of a short, hacking cough, which was greatly aggravated and became almost continuous upon the attempt to maintain a prolonged use of his voice. Upon examination, I discovered a growth about the size of a grain of wheat clinging to the extreme tip of the uvula; upon moving it with my probe, I found it was attached by a pedicle quite three fourths of an inch in length. As the uvula itself was abnormally long, the growth actually touched the epiglottis when that organ was thrown upward and forward during phonation. With the removal of the growth all the unpleasant symptoms disappeared.

Failure to recognize the growth is chiefly owing to the fact that when the mouth is wide open, as during the examination for diagnosis, retraction of the soft palate, uvula, and arches takes place, by which the growth is made to adhere closely to the surface from which its pedicle springs. The only way to avoid overlooking such growths is to attempt to move or dislodge with the probe any unusual prominence that may be seen at the places mentioned.

Of the cases that have occurred in my private and hospital practice, I have had no doubt as to the character of the growths, except in the last, who consulted me a few weeks ago. The patient, aged forty-seven, stated that several years ago he had had a severe attack of diphtheria, shortly after which he first felt the annoyance in his throat. Upon the posterior arch was a growth, the largest of the kind I have ever seen; the anterior surface or part which presented toward the orifice of the mouth seemed hard, firm, and smooth, resembling a fibroma rather than a papilloma. The pedicle in this case was unusually broad, thick, and vascular. Dr. C. Heitzmann, to whom the tumor was referred for examination under the microscope, reported it to be a "papilloma of an entirely benign type. The large number of medullary or inflammatory corpuscles at the surface indicates that the tumor has grown more rapidly of late."

The patients will generally report that they have taken cough mixtures, inhalations, gargles, troches, sprays, etc., without relief. The operation for the removal of the growth is very simple, and the aid of the specialist is not required. The tongue should be depressed upon the floor of the mouth, the patient holding the spatula, the growth seized with a long forceps and gently drawn downward and forward, and the pedicle divided with the scissors as closely as possible to the surface from which it grows. As very little, if any, hæmorrhage follows the division of the pedicle, the scissors are to be preferred either to the cold wire snare or galvano-cautery loop. The snare may fail to remove the entire pedicle and thus furnish a nucleus for a recurrence of the growth, and the cautery may, in the event of gagging or retching on the part of the patient, inflict a burn upon the surrounding tissues which will annoy the patient for several days.

65 WEST THIRTY-FOURTH STREET.

**The Philadelphia Neurological Society.**—At the next meeting, to be held at the Hall of the College of Physicians on Monday evening, the 27th inst., Dr. Charles L. Dana, of New York, will read, by invitation, a paper entitled *Some Studies of the Nature and Symptoms of Shaking Palsy*, with the Report of an Autopsy.

\* Litten. *Loc. cit.*

† V. Fritsch. *Loc. cit.*

‡ V. Jaksch. *Loc. cit.*

\* Albu. *Berliner kl. Wochenschrift*, May 30, 1892.

## VIBRATORY MASSAGE OF THE MIDDLE EAR BY MEANS OF THE TELEPHONE.

By HAROLD WILSON, M. D.,

DETROIT, MICH.

CONSIDERABLE interest has been excited during the past six or eight months in what may be called the "vibratory treatment" of affections of the middle ear. The ordinary methods of treating these affections, such as the use of the Politzer bag or Siegel speculum, involve the forcible movement of the tympanic membrane and the small bones of the ear by mechanical means. The novelty of the new treatment consists in the means by which these vibrations are produced. The "otophone" of Maloney, making use, I believe, of the direct vibrations of the human voice, and the phonograph, as employed by Garey, utilizing indirect voice vibrations and those of mechanical origin, are two new methods of obtaining rapid vibrations. Both of these methods are reported to have given rather remarkable results in the treatment of some forms of middle-ear catarrh, relieving the tinnitus and improving the hearing where other and recognized methods of treatment had failed to give the patients any particular help. The claims of this new method are of so startling a nature that it seems to be worth a careful investigation, although its promoters have been guilty of announcing their results in a rather sensational fashion. The "otophone" is a patented device, and the phonograph is somewhat expensive, and, although of course also patented, its use in this connection is free to the entire profession. The object of this communication is to call attention to a third method by which these rapid vibrations may be secured and which may possibly be found to be of as much therapeutic value as those mentioned above.

The usefulness of this new method of treatment depends, it is contended, upon the "massage" given to the movable parts of the middle ear, by which the mobility of the small bones is increased and the nutrition of the soft parts so improved that their normal functions become more or less restored. Acting upon this assumption, the writer has made a few experiments with the hand telephone of Bell, the diaphragm of which can be set into powerful vibration by the interrupted current from an ordinary faradaic coil. This instrument was connected with the switch-board of an office battery from which an interrupted current of greatly varying interruption rate and intensity could easily be obtained by adjustments of the interrupter, and variations in the number of cells connected with the induction coil. In this way a considerable variety of sounds could be set up in the telephone, from slow beats to a noise that would ordinarily be considered deafening. The pitch of the notes could be further altered by using the rheostat.

Now, if the benefits derived from the use of the phonograph, according to Garey, are due to the massage effects of the vibrations set up, it seems probable that from the telephone used in the same fashion similarly beneficial results ought to follow. With this idea in view, the writer has used the telephone apparatus in the following cases, with the results stated. The *modus operandi* of its employment was to connect the hand telephone with the faradaic

coil and have the patient hold it close against the ear, starting the current either before or after the instrument was in position. Vibrations of the greatest intensity were used in those cases where there was the greatest impairment of hearing, and the individual treatments were from five to fifteen minutes in duration.

CASE I.—F. G. E., aged twenty-seven years. History of measles when ten years old, followed by some deafness. Had enlarged tonsils, which were operated upon. Pronounced deafness in the right ear for a long time, also some tinnitus in the left, noticeable only when attention was directed to it, and in a quiet place. Membrana tympani of right ear thickened, somewhat retracted, and lacking in mobility; that of the left ear not much changed from the normal. H. w. r. = 0, l. = 6 to 8 feet. Patient had been under my care for six months, having reported to me six or seven times during that period, and having used the Politzer bag daily and taken various internal remedies in the mean time. There had been a slight improvement in the tinnitus; the hearing remained practically the same. On August 19th I began the use of the telephone and continued it every other day for about three weeks, at the end of which time no perceptible change had taken place either in the hearing or the tinnitus. Patient has not reported since.

CASE II.—Mrs. R., aged thirty-two years. History of catarrhal deafness of several years' standing. Membrana tympani, left ear, whitish; handle of malleus retracted; apex of light spot only visible; H. w. = 1 p. Right ear similar to left; light spot not so small; H. w. = 1 inch. Nasopharyngeal catarrh. Tinnitus very prominent, and annoying, particularly in the left ear. Telephone used about three times a week for three weeks. After the second treatment the patient declared that the tinnitus in the left ear was not so great, and that it was less here than on the right side. After this no further change was noted. At the end of the period mentioned the hearing was unaltered and the use of the telephone was discontinued.

CASE III.—Miss M. K., aged fifty-six years, September 21st. Deafness for eight or nine years. Tinnitus like escaping steam during the last few weeks; previously had noises like explosions, but this condition was intermittent. Both ears similarly affected. Some nasopharyngeal catarrh. H. w. = 0, both ears; voice-hearing reduced to ordinary tones at about two feet. Both ears showed a small amount of impacted cerumen, which was removed by syringing. Membrana tympani thickened and retracted. Telephone used for five minutes. The following day the patient reported that the tinnitus in the left ear had ceased, and that in the right ear was less. Patient did not report again until October 3d, at which time the ears had undergone no further change. The telephone was used for ten minutes. On October 8th the patient reported that following the last treatment there was an increase of the noise in the right ear and a reappearance of that in the left for a few hours, after which the noise subsided in both ears and had not troubled her very much since. Several additional treatments were had at intervals of three or four days apart, with the final result that the tinnitus in the left ear was practically relieved and that in the right considerably improved. The hearing was not improved.

CASE IV.—Mrs. J. L., aged sixty-one years, consulted me November 19, 1890, with a history of tinnitus in the left ear during the previous two years, dating from a mild attack of middle-ear suppuration. The tinnitus was constant, not noticed when the patient was busy, but quite distressing when she was quiet. Membrana tympani hardly changed from the normal in appearance. Various internal remedies and the Politzer inflations were employed more or less often during the ensuing

two years. The patient reported to me October 1st of this year. The tinnitus was still present. She had been suffering from a crop of small furuncles affecting both ears for several weeks. I prescribed picrate of calcium for the furuncles, and put her upon the telephone vibrations. After four or five treatments the tinnitus seemed to be materially improved, except for a temporary aggravation after each treatment. The patient wished to see how much permanent effect would follow from the treatment already given, and has discontinued her visits, to report again in a few weeks.

CASE V.—Miss N. L., aged thirty-one years, consulted me August 1st for deafness. For a number of years there had been a gradual loss of hearing in both ears without pain or tinnitus. There was hypertrophic catarrh of the naso-pharynx. The membrane tympani were much thickened and retracted; movable on Valsalva inflation. H. w. =  $\frac{3}{4}$  in.; L. = 14 to 16 in. For a month the patient was under almost daily treatment, appropriate local measures being directed to the relief of the nasal catarrh, and the telephone used sometimes in one, sometimes in both ears. Owing to the death of her brother, she discontinued her visits September 1st. At that time the condition of the mucous membrane of the nose was materially better, but there had been no improvement in the hearing.

Reviewing the results obtained in these cases, it is to be noted that in all except the last no other treatment was carried on at the time the telephone was being tried except the removal of the cerumen in Case III and the use of picrate of calcium in Case IV. The cases are too few and the results too ambiguous to enable us to arrive at any definite opinion as to the merits of this form of treatment. Three patients seemed to improve in regard to the tinnitus, but in none was there any benefit shown to the hearing. In one of the cases reported by Dr. Garey improvement did not show itself until three months had elapsed after the treatment was begun. It is quite possible that in none of the above cases was it continued long enough to secure positive benefit. They are reported as merely suggestive. If vibratory massage of the middle ear comes to be recognized as a really valuable method of treatment, I am convinced that the telephone will be found a convenient means of applying it. Whether it will be found competent to supply the place of the phonograph in every respect for this purpose, clinical experience alone will determine.

One element of possible value in the use of the phonograph is the diversity of the sounds that can be produced with it. The importance which this fact may assume is in the development of the attentive faculty which it may afford. The fact that hearing may be lost through inattention is well known, and it would not be surprising that any form of treatment which cultivated the power of attention might relieve some cases of deafness. At the present time, therefore, it is a matter of some doubt how far the new treatment is mechanical in its action and how far it is psychical.

96 MIAMI AVENUE, October 27, 1892.

The Third Annual Dinner of the Society of the Alumni of Charity Hospital will be held at Clark's, 22 West Twenty-third Street, on Wednesday evening, March 1st, at 7 o'clock. Tickets may be obtained from the president, Dr. Walter L. Carr, 6 East Fifty-eighth Street, or the Secretary, Dr. Alexander Lyle, 112 East Eighty-first Street.

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THE MICROCOCCUS LANCEOLATUS.

In the *Bulletin of the Johns Hopkins Hospital* Dr. William H. Welch has given a revision of his earlier addresses and papers on the bacteriology of pneumonia that presents the latest summary of our present knowledge of the so-called pneumococcus. It is manifest, from what Dr. Welch has to say on the nomenclature of the coccus, that that organism has been abundantly baptized. Fourteen or more names have been tried on it, and of these the most fitting, says Dr. Welch, is *Micrococcus lanceolatus*, designed by Foà and Bordoni-Uffreduzzi. This name, with or without the additional descriptive epithet *capsulatus*, has at present a wide currency among the special workers in that field. In general scientific circles the names *Diplococcus pneumoniae* and *Pneumococcus* are the best known. The chief objection to these latter words and their variations is that they suggest that an exclusive relationship exists between the coccus and acute croupous pneumonia, whereas this same organism is an undoubted causative element in epidemic cerebro-spinal meningitis and many other affections independent of pneumonia. It is quite probable that the *Micrococcus pyogenes tenuis* of Rosenbach is identical with the lanceolate form, as was first pointed out by Neumann. Dr. Welch is inclined to the opinion that this organism is more properly designated as a bacillus than as a coccus, but present usage is so overwhelmingly in favor of calling it a coccus that he has found it preferable to go with the majority. It would appear from what he says that he had seriously considered the propriety of bringing in a name of his own coinage, but had desisted, for he says "certainly one ought to hesitate before adding a new name to the already long and confusing list of synonyms applicable to this organism."

This last contribution of Dr. Welch's is a mine of information, partly derived from a painstaking study of the work of his fellow-experts in bacteriology and partly from original research: it is the most complete *résumé* of the subject in the language.

BILATERAL PARALYSIS FOLLOWING PNEUMONIA.

PROFESSOR VON KRAFFT-EBING has presented before the Vienna Medical Society a case of rare paralysis of the upper extremities consequent on the action of the toxins of pneumonia. As reported in the *Semaine médicale*, the patient, a man of thirty-eight, was taken with a loss of sensibility of the arms as far down as the elbows, following an attack of pneumonia in July last; the skin was hyperæsthetic from the elbow to the



finger-tips. At the end of twelve days sensibility returned, but paralysis persisted, and to it were added dyspnoea, dysphagia, auditory disturbances, and some pain in the muscles of the neck, back, and lower extremities. Of these symptoms dysphagia continued the longest, the others disappearing in the course of two weeks. The dysphagia gradually subsided, however, along with the paralysis, and there remained only marked atrophy of the muscles of the shoulders, arms, and hands. This was more evident on the left than on the right side. The reflexes were impaired.

In considering the ætiology of these conditions, Dr. von Krafft-Ebing expressed the opinion that they could not be referred to a cerebral lesion. Further, they could not well be traced to a poliomyelitis anterior acuta, because of the anæsthesia for twelve days, of the comparatively mild course of the affection, and of the absence of trophic change. He believed that it was a case of toxic post-pneumonic polyneuritis, due to the action of the toxins of pneumonia on the brachial nerves. He pointed out that there had been present in this case the fibrillar twitchings usually believed to pertain to an affection of the trophic centers; this fact, therefore, may be held to show that these twitchings may also be produced when the peripheral nerves are affected.

## MINOR PARAGRAPHS.

### A JOURNAL FOR MEDICAL WOMEN.

WE have received the first number of the *Woman's Medical Journal*, a monthly of fourteen pages of reading matter, "devoted to the interests of women physicians." E. M. Roys-Gavitt, M. D., is the editor-in-chief, Claudia Q. Murphy the managing editor, and Margaret L. Hackedorn the business manager. The salutatory editorial opens as follows: "There is an early Christian legend that says that when one of the saints applied for a home in a monastery the prior refused him entrance, on the plea that the monastery was already filled and there was no room for another novice. Undeterred by this announcement, the pilgrim took a glass of water which was well filled and in reply placed a rose leaf in it without spilling a drop. It is needless to say he was admitted. This story is not without its moral. They may say, and say truly, that the field of medical journalism is well filled, and that there is no room for another journal. We beg to present ourselves, even as the pilgrim to the monastery, with a rose leaf in our hands." We have heard this story told somewhat differently—a candidate for admission into the French Academy was shown a cup of tea full to the brim, but not a word was spoken; taking the act to imply that there was no more possibility of the number of the immortals being increased than there was of his adding more tea to the cup without making it run over, the candidate laid a tea leaf on the liquid and gained his point. Whichever may be the original version, if either of them is, and whether the ladies having this new journal to conduct come before the profession with tea leaves or with rose leaves in their hands, we welcome them to the editorial ranks. The journal is published in Toledo, Ohio.

### MRS. MAYBRICK'S CASE.

THE action of the British Home Secretary in declining to sanction a visit from Sir Spencer Wells to Mrs. Maybrick seems as unwise and ungenerous as ever, if nothing better can be said

of it than the following bald statement on information, published in the *British Medical Journal* for February 11th: "Mrs. Maybrick was ill in the prison at Woking; she had both pulmonary and internal hemorrhage. It was stated by the officials that her illness was feigned, that she had pricked her gums and cheeks with needles, and that she had wounded herself with a tin knife. Her mother, the Baroness de Rocques, desired that an independent surgical opinion should be obtained on the truth or mistaken nature of this charge. She was especially desirous that Sir Spencer Wells's opinion should be obtained because he had successfully operated about twenty years ago upon her own mother, grandmother of Mrs. Maybrick; and Sir Spencer Wells, while declining any opinion as to the guilt or innocence of the prisoner, expressed willingness to see her and report upon the evidence as to her state of health and the question whether her illness was real or imaginary, and the symptoms feigned or exaggerated. Upon this understanding the Baroness made the formal application to the Home Secretary which led to Mr. Lushington's reply.

### WOUNDS MADE WITHOUT INJURY TO OVERLYING CLOTHING.

Is the *Lancet* for January 21st Mr. Hulke reported the case of a man with a lacerated wound resembling a stab, that had been inflicted without injury to the clothing that covered the part. In the same journal for February 4th Mr. Sidney Spokes tells of his having been called about ten years ago to see a man who had an incised wound of the scrotum through which the right testicle was protruding, the wrinkled skin and contracted dartos closely surrounding the spermatic cord. The man's story was that, having on a pair of corduroy trousers, in one of the pockets of which there was a purse with a metal border and clasp, he had fallen and been trodden on by a cart-horse in such a manner as to force the metallic part of the purse against his genitals. On examining the man's trousers, Mr. Spokes found that not even the pocket was injured, and consequently he doubted the story, but it was substantiated to his satisfaction. Well attested instances of this sort are of important medico-legal significance.

### THE AMERICAN MEDICAL ASSOCIATION AND THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE *Journal of the American Medical Association* reprints a recent paragraph of ours on matters connected with the Medical Society of the State of New York's repeal of its code of ethics, and adds: "In this action of the New York State medical society there seems to be a rolling back and away of the clouds and mists that have obscured the relations of that organization with the American Medical Association. We look hopefully to the committee appointed by the American Medical Association at its last meeting to report for the approval of and adoption by that organization a code of ethics, constitution and by-laws that will be acceptable and provide an organic law that will make possible a unification and membership in one body of every practitioner of rational medicine in this country."

### THE GOVERNMENT OF VENEZUELA AND THE PAN-AMERICAN MEDICAL CONGRESS.

SEÑOR P. EZEQUIEL ROJAS, the Venezuelan Minister of Foreign Affairs, has forwarded on behalf of his Government, through the United States *Chargé d'Affaires* at Caracas, a formal acceptance of the invitation issued pursuant to the joint resolution of the United States Congress to the various governments of the Western Hemisphere to send official delegates to the Pan-Amer-

ican Medical Congress. The selection of delegates has not yet been made, but we learn that the names will be forwarded at the earliest possible moment.

#### BANDAGING THE EXTREMITIES IN COLLAPSE.

MANY regard the procedure of bandaging the extremities in collapse as a modern procedure. But Alexander of Tralles advised ligatures to the arms and hands for the relief of purging, and Garcia d'Olta, in his work on the simple drugs of India (printed in 1563), states that the Hindoo treatment for the cramps and purging of cholera was to put a tight band around the head and to bandage the legs very tightly.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 24, 1893:

DISEASES.	Week ending Feb. 14		Week ending Feb. 21	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	26	16	25	5
Typhoid fever.....	6	3	11	5
Scarlet fever.....	168	16	203	20
Cerebro-spinal meningitis.....	0	0	2	2
Measles.....	67	2	100	12
Diphtheria.....	106	35	129	34
Small-pox.....	0	0	7	3

The Lebanon Hospital was dedicated on Wednesday afternoon, the 22d inst. The Lebanon Hospital Association of the City of New York was incorporated July 17, 1890. After considering the question of the location of the hospital very carefully, the association bought the Ursuline Convent building and property, and also two adjoining corner lots on Westchester Avenue, corner of 160th Street. This purchase comprises a block of forty city lots, a five-story brick structure about two hundred feet square, and several smaller buildings, and is located in the center of a large district that until now has been entirely destitute of any hospital service. The building has been equipped for the care of a small number of patients, and on February 23d was to be open to receive and care for the sick poor.

**St. Luke's Free Hospital, Chicago.**—An orthopedic service has been established in the hospital, and Dr. John Ridlon has been appointed attending orthopedic surgeon.

The Death of Dr. J. Frederick Moore, of Brooklyn, occurred on the 19th inst. He was a genial and exceptionally popular member of the profession, and had made a record as a civil service commissioner and sanitary official for many years at various times. He first went into the health service of the city as far back as 1873. He was a sanitary inspector at the time of his last illness. Dr. Moore was a graduate of the University of the City of New York, of the class of 1861. He had been invalided for several months by reason of the inroads made upon his health by multiple sarcomatous growths. He leaves a son who is a practitioner in Brooklyn.

**Army Intelligence.**—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 12 to February 18, 1893:

KIMBALL, JAMES P., Major and Surgeon, is granted leave of absence for three months, on surgeon's certificate of disability, with permission to leave the Department of Texas.

WARE, ISAAC P., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month.

SMITH, JOSEPH R., Colonel and Assistant Surgeon-General, is granted two months' leave, with permission to leave the United States.

MIDDLETON, J. V. D., Major and Surgeon, will, in addition to his present duties as post surgeon of the Presidio of San Francisco, Cal., perform

the duties of medical director, Department of California, during the absence of Colonel Joseph R. Smith, Assistant Surgeon-General.

REYNOLDS, FREDERICK P., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Monroe, Virginia, and assigned to duty at West Point, N. Y. Par. 1, 2, and 4 of S. O. 34, A. G. O., February 14, 1893.

SWIFT, EUGENE L., Captain and Assistant Surgeon. The suspension of the order assigning him to Fort Yates, North Dakota, is removed.

#### Society Meetings for the Coming Week:

MONDAY, February 27th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association; Philadelphia Neurological Society.

TUESDAY, February 28th: New York Dermatological Society; Buffalo Obstetrical Society; Boston Society of Medical Sciences (private).

WEDNESDAY, March 1st: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton); Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor).

THURSDAY, March 2d: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, March 3d: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, March 4th: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

#### Answers to Correspondents:

No. 396.—The gentleman's address is No. 2134 Hancock Street, Philadelphia.

No. 397.—1. Baker Brown's *Sterility; its Causes and Treatment*, London, 1871; J. M. Duncan's *Fecundity, Fertility, Sterility, and Allied Topics*, Edinburgh, 1866, and New York, 1871; and the same author's *Gulstonian Lectures On Sterility in Woman*, London, 1884. 2. We have not been able to ascertain. 3. We can not entertain the notion that the device mentioned has any efficacy at all.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

Meeting of February 7, 1893.

The President, Dr. M. ALLEN STARR, in the chair.

**Subacute Unilateral Bulbar Palsy.**—Dr. ALFRED WIENER presented a lad, aged seventeen years, whose family history was negative, and who had been in good health up to two years ago, when he had a severe attack of perityphlitis, from which he recovered after five weeks of illness. He had suffered from catarrhal pharyngitis, more or less, ever since childhood. A year ago last spring the glands on both sides of his neck, in the region of the sterno-cleido-mastoid muscles, began to enlarge. In the summer of the following year an abscess formed in one of these glands on the right side, and this was opened. Soon after this the remaining glands began to create so much discomfort that those on the right side were removed, together with a large portion of the sterno-cleido-mastoid muscle. On September 1st of the same year the glands on the left side were removed. These, under the microscope, proved to be tubercular. In the latter part of November, 1892, it was noticed that

the patient's tongue, on protrusion, deviated to the right side. This was followed by hoarseness and difficulty in swallowing, and later on by distinct atrophy of the middle half of the tongue. An electrical and laryngoscopic examination showed that there was complete unilateral palsy on the right side, involving the tongue, the soft palate, the pharynx, and the larynx, together with paralysis of the sterno-cleido-mastoid and of the upper portion of the trapezius. The lesion in this case, the speaker said, might occupy a point just external to the exit of the pneumogastric and spinal accessory nerves from the skull, or be situated on the surface of the medulla, or be nuclear. All the facts in this case lent support to the view that the lesion was a tubercular one, situated at the nuclei of the nerves which governed these palsied parts. These groups of cells formed the conjoined nuclei of the spinal accessory, vagus, and hypoglossal nerves, and a very localized lesion in this part of the medulla was sufficient to affect them. The involvement of the trapezius and sterno-cleido-mastoid muscles was probably due to injury to the nerve supplying them, while the laryngeal symptoms might be accounted for by paralysis of the stylo-hyoid muscle (due to pressure from an enlarged gland), or by the antagonistic action of the muscles on the left side of the throat over the paralyzed muscles on the right side.

#### **Complete Atrophy of the Tongue, with other Nuclear Symptoms.**—Dr. GEORGE W. JACOBY presented a woman, aged thirty years, married nine years. She had had three children and two miscarriages. During the past fourteen months she had not menstruated. Her mother had died of pulmonary tuberculosis at the age of thirty-eight. Her husband's sister had recently died of consumption, and during her illness the patient had nursed her. During December, 1892, the patient was treated for loss of sight, which had come on gradually in both eyes, reducing vision to such an extent that she required some one to lead her. This loss of sight was found to be due to a slight atrophy of both optic nerves, and under internal treatment the symptom disappeared. The patient had also suffered from violent headaches, which disappeared with the loss of sight. Three weeks ago she noticed difficulty in swallowing and speaking. She vomited every morning on rising, even without eating. At a previous examination it had been found that the tongue deviated toward the left, and there was marked atrophy of that side of the tongue. The uvula hung to the left, and there was paralysis of the left side of the soft palate. The patient had enlarged glands in the neck. There was at present complete atrophy of the tongue and of the soft palate. There was also motor ocular paralysis on the left side, involving the internal and external muscles. The speaker presented the case as one of progressive nuclear paralysis.

Dr. B. SACHS said he had seen Dr. Wiener's patient some time ago. The idea of a peripheral lesion was considered for a short time only, and the conclusion was soon arrived at that the basilar site was the more probable one. The lesion was no noubt of tubercular origin. A chronic nuclear condition must be excluded, on account of the rapid progress of the symptoms and because they had remained strictly unilateral. Dr. Jacoby's case he considered a very interesting one, although he felt rather inclined to doubt the diagnosis, because of the rapid progress of the symptoms. They seemed to indicate the presence of some active lesion, either specific or tubercular.

**Modifications of Respiration in the Insane.**—Dr. THEODORE H. KELLOGG read a paper on this subject. He gave a systematic description of the various forms of respiratory changes found in the insane. To facilitate the study of these modifications he grouped them as follows: *a*. Modifications of respiration as regarded frequency, depth, rhythm, and sound. *b*. (1) Spasmodic expiratory modifications, such as occurred in

laughter, crying, sneezing, coughing, and snoring; (2) spasmodic inspiratory modifications, as in singultus, chasmus, and laryngeal crises. *c*. Dyspnoic modifications.

Dr. WILLIAM M. LESZYNSKY presented a new form of electrode to be employed for diagnostic purposes.

**Sarcoma of the Cervical Spinal Cord.**—Dr. C. A. HERTER read the history of the case, and presented some photographs and microscopical specimens to illustrate it. The patient was a merchant, twenty-nine years old. He had been in good health until the beginning of this illness, barring occasional attacks of chills and fever, and repeated and prolonged colds, which ended in cough lasting for several weeks. He had never used alcohol, and his habits had always been in every respect exemplary. The family history was negative. In May, 1891, the patient noticed a loss of sensation, beginning as numbness, in the ulnar side of the little finger of the right hand. This sensory loss soon extended to the entire little finger, and thence to the ring finger and the ulnar side of the middle finger. At the same time there was an upward extension of anæsthesia along the hand. In three months from the onset the anæsthesia had passed up the ulnar side of the forearm and arm and had reached outward over the hand as far as the thumb. The patient also began to have pain on the ulnar side of the right forearm and hand, slight and occasional at first, afterward very severe and of increased duration. This was followed by loss of power, first in the flexors of the fingers, then in those of the forearm. About five months after the first symptoms were noted there developed atrophy of the first dorsal interosseus. This wasting soon extended to the muscles of the thumb and hypothenar eminence and to the flexors of the forearm. About the eighth month the pain abated very much. During the period of severest pain the entire right arm became oedematous. An electrical examination made in June, 1892, showed a loss of faradaic irritability in the right arm, in all the extensors and flexors of the wrist, and in the interossei. The tactile sense and the sense of pain were entirely lost along the ulnar border of the arm to the axilla, and were greatly impaired along the radial border as high as the shoulder. The temperature sense (which was only roughly tested) appeared to be quite lost in the arm. There was almost an entire loss of the muscle sense; the patient had no sense whatever of the position of the fingers, hand, and arm. The surface of the right arm was much colder than that of the left. It was pale in color. In the left hand and arm power and sensation were apparently normal. Both legs were a little weak. Equilibrium was maintained without any difficulty. The knee-jerks were increased, the exaggeration being more pronounced on the right side. The power of the sphincters was unimpaired. There was no vertebral deformity, and there was no tenderness on pressure over any of the cervical or upper dorsal spines. Sight was unimpaired. The pupils reacted normally to light and during accommodation. The right palpebral fissure was distinctly smaller than the left, and the right lid drooped a little. An examination of the chest showed dullness on percussion over the upper part of the right side. The temperature was 101° F., the pulse 100, the respiration about 30. In the course of two weeks after this examination the right leg became much weaker than before, and pain and numbness extended gradually down the entire left arm. Loss of power was also detected in the left leg. There was temporary retention of urine. In July, 1892, a tense swelling was observed over the outer end of the right clavicle and extending down into the axilla over the front of the shoulder. In the course of two weeks this tumor grew to the size of a child's head, became very tense, and was covered by greatly distended veins. The patient grew worse rapidly. Incontinence of urine and feces set in, and the breathing became



labored owing to paralysis of the thoracic muscles. There was total loss of sensibility extending as high as the crest of the ilium on each side, with impairment of sensibility bilaterally as high as the third rib. Large bed-sores appeared, and on September 12, 1892, sixteen months after the beginning of the symptoms, the patient died from exhaustion and respiratory failure.

A partial autopsy was made and a mass removed from the clavicle and another from the upper and posterior part of the thoracic wall. A number of tumors occupied the posterior and inner aspects of the right upper part of the chest, displacing the lung. Some of these masses appeared to grow from the clavicle, others from the vertebra, but their relations could not be distinctly made out. The specimen obtained from the spinal cord was five inches long, and extended from the seventh cervical to the seventh dorsal segments, both inclusive. Sections were made from the seventh cervical and the first, second, and third dorsal segments. The tumor involved at this level nearly the entire right half of the cord and encroached anteriorly upon its left anterior column. Posteriorly, it did not pass quite to the posterior horn. The ganglion cells in the region of the tumor had undergone partial or entire destruction, and in some instances had apparently been replaced by small groups of spindle-shaped connective-tissue cells. In structure the tumor was an exceedingly vascular spindle-celled sarcoma. Sections made from the mass obtained from the clavicle and thoracic wall showed them to be fibro-sarcomata.

Regarding the diagnosis of the case, the speaker said that, while the anatomical diagnosis presented no difficulties, the pathological diagnosis was made with some hesitation. The presence of signs of consolidation over the lung, muco-purulent expectoration, hectic temperature, rather rapid emaciation, and night-sweats, all suggested a tubercular process, and the diagnosis of a secondary tubercular tumor of the cord was thought to be justified. The alternative diagnosis was sarcoma, but this appeared improbable. An examination of the sputum was not made. Twenty six cases of sarcoma of the spinal cord collected by the speaker and compared with cases of massive tubercle of the cord had brought out a number of facts, some of them of practical interest. They were: 1. Sarcoma of the spinal cord occurred with about equal frequency in the two sexes; of the twenty-six cases, fourteen had been in females and twelve in males. 2. Sarcoma of the spinal cord was essentially a disease of adult life; of twenty-one cases, only two had occurred before the twentieth year, and seventeen between the ages of twenty and fifty years. Massive tubercle, on the contrary, was a disease of adolescent and early adult life; fifteen out of twenty-four occurred between the fifteenth and thirty-fifth years and five before the fifth year. The ætiological factors in the production of sarcoma of the spinal cord were practically unknown. In one case only (following a fall on the ice) had it appeared to exert any influence, and even there the influence might be questioned. 4. In three cases of sarcoma the first symptoms had appeared during pregnancy. 5. Pain appeared to be the earliest and most prominent symptom in four fifths of the cases. Speaking generally, the early symptoms of sarcoma of the cord were mainly of an irritative and not of a destructive nature. In sarcoma the course of the disease was in general much slower than in tubercle. In all the cases the diagnosis had been confirmed by autopsy. Glioma had been excluded.

Dr. Sachs said he had been much interested in Dr. Herter's attempts at diagnosis between sarcoma and tubercle of the cord. The rapid progress and greater destructiveness of the latter disease was probably the most important symptom. In a case that had come under his observation eight years before, he had diagnosed probable sarcoma and found tubercle, and in that case

the solitary lesion of the cord had positively been the extreme deposit of the disease. Tumors of the cord were of extreme rarity.

Dr. MARY PUTNAM JACOBI referred to a case of sarcoma of the cord in a child, reported by Dr. Gee (*St. Bartholomew's Hospital Reports*), in which the diagnosis had been confirmed by autopsy. In a case reported by her last autumn the symptoms had very closely resembled those in Dr. Gee's case. There was a predominance of the irritative over the destructive symptoms, and there were unilateral paralytic symptoms. She had made a diagnosis of sarcoma of the cord, and before death a large tumor appeared in the cervico-dorsal region. No autopsy was permitted.

Dr. FREDERICK PETERSON stated that sarcoma in general was more common under the age of thirty than above that age.

The PRESIDENT said that, while sarcoma in general was more commonly met with in persons under the age of thirty, yet sarcoma in the nervous system was decidedly more frequent in adult life. He had recently collected 600 cases of tumor of the brain (300 in adults and 300 in children), and among these there were 34 cases of sarcoma in children and 157 in adults. He agreed to Dr. Sachs's statement that tumors of the spinal cord were very rare. He had been much interested in the collection of cases made by Dr. Herter, and thought it would be well to carry the investigation further and determine how many of these cases would have been suitable for operative interference.

Dr. GRÈME M. HAMMOND referred to the symptoms of Dr. Herter's patient on the side of the body opposite to that invaded by the growth. These, he thought, might have been due to degenerative changes in the opposite side of the cord, caused by a cutting off of the blood supply, or the commissure fibers might have been interfered with enough to produce the symptoms.

Dr. HERTER stated that there had been only partial interference with the nutrition of the opposite side of the cord. As regarded an operation, he had not seen the patient until a very late day, and it had seemed to him that the case was not suitable for an operation. The patient had been seen by an eminent neurologist during the earlier stages, and had been treated by electricity with the idea that the trouble was neuralgic.

**Discussion on the Motor Disturbances of the Heart of Nervous Origin.**—Dr. JACOBY read the first paper on this subject. He stated that in a large number (probably in more than half) of the persons who consulted physicians on account of some motor disorder of the heart no anatomical lesion was clinically discoverable, and no mechanical cause could be found. In such cases it was reasonable to seek for the cause of the altered function in some disorder of the complicated nervous apparatus of the heart. The subject might conveniently be divided into intermittent, irregular, abnormally slow (bradycardia), and abnormally frequent (tachycardia) heart's action.

Intermittency might be true or false; in the latter form the pulse failed, but the heart was regular, while in the former the heart beat was actually dropped. In irregularity of the heart's action the number of pulsations varied from minute to minute, or the pulsations varied in height and tension. These forms of arrhythmia might be persistent or only temporary; when they were persistent, they were probably due to some organic disease of the heart, whether it could be detected or not; when they were temporary, they were either dependent upon defective blood mixture or purely neurotic. Toxic influences associated with sexual excesses and with the excessive use of tea, coffee, tobacco, and alcohol he had found to be potent in the production of arrhythmia. Intermittency might be due to even the moderate use of alcohol.

Slowness of the pulse, or bradycardia, was a term applied in cases where the pulse fell below 60 or, according to some writers, below 40. A slow pulse should be regarded as a symptom only, and might be due to a variety of causes. If we made use of the term bradycardia at all, we should limit it to cases in which the infrequency of the pulse was due to a disorder of innervation. A slight reduction in the frequency of the pulse was very common in disturbances of the digestive tract.

In paroxysmal tachycardia the attack was always sudden in its onset and usually unexpected. The pulse was increased from normal to from 180 to 240, or even to 300, according to some observers. There was no irregularity of rhythm or intermittence. The heart beat in a strong and energetic manner, and in direct contrast to its action was the extreme diminution of arterial tension. The cessation of the attack was as sudden as its onset. The paroxysms varied in duration from a few minutes to several hours, and occasionally lasted even for days. The intervals between the attacks were irregular. During an attack the excretion of urine was generally diminished; it might be followed by the passage of a large quantity of clear, limpid urine. The etiology of these cases was obscure. Psychic influences, fright, errors of diet, and bodily exertion had all been assigned as causes. It was an affection of adult life; this we could say positively, and the best-established causes were bodily and cerebral overwork.

The author referred to the pathology, and gave a brief review of the various theories put forth regarding the nervous mechanism of the heart. The assumption that we were dealing with a bulbar neurosis appeared to him to be the most probable one.

Dr. JOHN WINTERS BRANNAN said that some years ago, when he was led to investigate the subject of the pathology of tachycardia, he had been inclined to believe that it was due to a bulbar neurosis, but he had afterward rather favored the suggestion made by West, to which Dr. Jacoby had referred, that the cause of the trouble was to be found in the heart muscles. Up to four years ago, only four autopsies had been recorded, and in all of these the nervous system had been found intact; in only two had the heart muscles been examined, and in both cases an extensive development of fibrous tissue had been found in the wall of the left ventricle. This, as some observers had said, might have been due to the rapid cardiac action. In another case, where the disease had existed only three months, there had been an extensive development of fibrous tissue throughout the wall of the left ventricle, in the trabeculae, and in the papillary muscles. The only objection to that theory lay in the fact that there were so many cases of myocarditis without any history of tachycardia. This had been accounted for by the explanation that certain regions of the heart muscles were tolerant, while other regions were intolerant, and that with the latter there was tachycardia. The intolerant regions were especially found in the interventricular wall and the papillary muscles.

Dr. JACOB referred to Gaskell's experiments in connection with this subject. She stated that the suggestion made that an apparently functional disorder might constitute the precursor of a more serious condition seemed to her extremely interesting and important. Such a case had recently been brought to her observation. The patient was a woman who, for three years, during the period of the menopause, was supposed to be very hysterical. She suffered from insomnia, night terrors, and other symptoms that were considered purely neurasthenic, as no organic disease was found. She finally had an attack of hæmorrhage in the pons.

Dr. HERTZ referred to a case of paroxysmal tachycardia that he had had under observation for two years. The man was

a sexual neurasthenic and suffered from intestinal indigestion. Each attack lasted four or five hours and was generally induced by some indiscretion of diet. The urine passed after such an attack contained in a large amount the products of intestinal putrefaction. It was an interesting question whether the attacks were due to such poisonous substances or perhaps to mechanical causes, such as the distention of the colon or other parts of the intestinal tract.

Dr. A. D. ROCKWELL was of the opinion that functional diseases of the heart sometimes led up to organic diseases, but not very often. These functional heart troubles oftentimes gave more misery than a serious organic disease. If there was disturbed rhythm of the heart which was paroxysmal in character, with intervals of normal pulse beat, the condition was apt to be a functional one, and, *per contra*, where the rhythmic disturbance was constant and associated with profound circulatory interference, indicated by syncope or vertigo, one was pretty safe in diagnosing organic disease.

Dr. LESZYNSKY had seen three attacks of tachycardia in a young physician. Each attack had been brought on by over-indulgence in alcohol and tobacco. The pulse rate varied from 180 to 200, and each attack lasted for two or three days. The patient had had no attack now for five years. As regarded slow pulse, he was acquainted with two persons, both members of the same family, in whom that symptom was very pronounced.

Dr. L. STIEGLITZ referred to a marked case of tetany he had seen in Dr. Hoffman's clinic at Heidelberg. The patient was a girl, aged eighteen, who had attacks of tachycardia with the pulse ranging from 180 to 220. With tetany there was often associated disease of the thyroid gland, and this was also the case in Basedow's disease, where the pulse was rapid. The tachycardia might possibly be due to some toxic influence of the blood.

## Book Notices.

*A Treatise on Diseases of the Rectum, Anus, and Sigmoid Flexure.* By JOSEPH M. MATHEWS, M. D., Professor of Principles and Practice of Surgery, and Clinical Lecturer on Diseases of the Rectum, Kentucky School of Medicine, Louisville. With Six Chromo-lithographs and Numerous Illustrations. New York: D. Appleton & Co., 1892. Pp. xvi to 537.

The many friends of Dr. Mathews throughout the country have looked forward to the appearance of this work with much interest. It is really the only new work of importance upon these subjects that has been brought out during the past two years, and merits a close consideration as embodying the latest utterances of one who has had a large experience in this field and devoted much study to it. To those who have followed the writings of the author for the past ten years much that the present book contains will seem familiar reading. It is nevertheless interesting to know that larger experience and wider observation have not changed the views of this conscientious worker in the field of rectal diseases.

Dr. Mathews maintains his title to priority as a rectal specialist in the United States, and certainly he deserves credit for what he has done to elevate this branch of surgery. He paints a very rosy future for those who contemplate entering upon this line of work in the assertion, "no class of diseases yields so promptly to treatment as diseases of the rectum." We are inclined to believe that those who are led into this field by such

an assurance of rapid results will ere long lose faith in their prophet, for surely many of the disorders of this organ are obstinate and difficult to cure.

Those who expect to find the book a scientific, systematic treatise upon the rectum and anus will be disappointed, for the author plainly avers that he has written only to record his own personal experience, that he has not taken the opinions of others as his guide, but has related facts as they appeared to him in the cases he has been called on to treat. Consequently there is very little said in the book upon minute anatomy, pathology, or the varying doctrines concerning the mooted points in rectal disorders. The chapters upon hysterical rectum, diseases of the sigmoid flexure, antiseptics in rectal surgery, and the anatomy of the rectum in relation to the reflexes are novel, although these matters have all been more or less written upon by specialists. The article on the hysterical or nervous rectum the author says he has written especially to oppose Dr. Goodell's views upon this subject. The description, he says, which the latter has given of the nervous rectum is a complete word picture of ulceration of the rectum, and he believes that all the symptoms described by Dr. Goodell are due to some local cause which is generally overlooked by the practitioner. The author is doubtless correct in this view of a majority of these cases, but it is a question whether he does not confirm the doctrines of Goodell in his article on the rectal reflexes.

The article upon constipation is one of the most original in the book. The author finds the chief cause for this common complaint in contraction or irritability of the external sphincter muscle. Many readers will here learn with us for the first time what an important thing this little muscle is. Writers upon these subjects generally teach that it is a comparatively unimportant part of the rectal anatomy, and that it is a matter of small moment if it should be cut or torn in an operation. The author of the present work, however, assigns to it a rôle of far greater importance than that of the internal sphincter. He dilates it for constipation, he contracts it for proclidentia, he soothes it for neuralgia, and he stimulates it for atony. The sigmoid flexure is, according to the author, another seat of the evil in constipation, and when such is the case, and the disease is not malignant, he advises the daily use of a moderate-sized bougie, to be followed by the injection of olive oil and iodoform. Most practitioners would hesitate to use large quantities of the latter drug in the intestinal tract, but the author says he has never seen any evil effects follow its use.

The section devoted to fistula is perhaps the most satisfactory in the book. The author does not consume time and space by a long and confusing division of the subject, but discusses it in a practical manner and is quite modest regarding his original work in this field. He still adheres to the practice of thrusting the director through the mucous membrane at the highest point of the fistulous tract, whether there is any pathological opening there or not, and cutting the intervening tissues through, holding that such incision will necessarily include the pathological opening into the gut, if there should be one at a lower point. The fallacy of this theory is evident to any one who is familiar with the tortuous tracts of fistula in the lower portion of the rectum. Many failures in the treatment of fistula are due to this very fact that the opening into the gut and a part of the fistulous tract remain untouched by this method. This, however, is the only objectionable portion of this article, and its concise practical teachings may well be studied by the oldest in our profession.

The section upon hemorrhoids is not quite so satisfactory, as the author is so wedded to the ligature operation that he fails to appreciate the advantages of others. His objections to the Whitehead operation are well founded, but, so far as the ligature and

the clamp-and-cautery operations are concerned, he has evidently not had sufficient experience with them to form just conclusions with regard to them. For example, he says the pain following the clamp-and-cautery operation is excruciating, owing to the burning of the cutaneous and mucous cutaneous tissues about the anus. Those who use this method most frequently never burn these external tissues, but trim them away with scissors, and only apply the cautery to the mucous and submucous parts. If any bleeding occurs at the points where the scissors have been used, it is in sight and easily arrested by pressure forceps. Hence it may truly be said that after the anæsthesia there is scarcely any pain to this operation. The author is certainly very skillful in the ligature operation, but, more than this, fortunate to have done it in a thousand cases without ulceration, contraction, or other unhappy sequence.

The author has not been infected with the excision fever as yet, and, though he believes that colotomy is of little service in cancer of the rectum, he yet questions whether the results justify the risks taken in excision by either the Kraske or the proctotomy methods.

The chapter on diseases of the sigmoid flexure is new and interesting, and we have no doubt that the author is correct in the opinion that many of the symptoms of rectal disorders are due to diseases of this portion of the colon. Malformations of the rectum occupy the last chapter of the book, and the author concludes by saying that operations for these, "whether by dissections *in situ*, punctures, or either one of the colotomies, are generally unprofitable and dangerous."

Much might be said in criticism of this work as a treatise on rectal diseases, but the author has forestalled us by disclaiming any such position for it. There are many repetitions, and there is much faulty English in the work which it would be well to eliminate in succeeding editions. However, in the hands of students and general practitioners, for whom it is intended, it will be not only useful, but an exceedingly safe guide. The printing, cuts, and lithographs in the work can not be too highly commended; and the same may be said of the diagnostic tables and the indexing.

#### BOOKS, ETC., RECEIVED.

Diseases of the Skin: their Description, Pathology, Diagnosis, and Treatment, with Special Reference to the Skin Eruptions of Children. By H. Radcliffe Crocker, M. D. (Lond.), Fellow of the Royal College of Physicians of London, etc. Second Edition, revised and enlarged. With Ninety-two Woodcuts. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xxxii-33 to 987. [Price, \$5.]

Handbook of Materia Medica, Pharmacy, and Therapeutics, including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy, and Minute Directions for writing Prescriptions. By Samuel O. L. Potter, A. M., M. D., M. R. C. P. Lond., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco, etc. Fourth Edition, revised. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xii-17 to 781. [Price, \$4.]

Lectures on Mental Diseases, designed especially for Medical Students and General Practitioners. By Henry Putnam Stearns, A. M., M. D., Physician Superintendent of the Hartford Retreat, Lecturer on Mental Diseases, Yale University, etc. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xviii-9 to 636. [Price, \$3.]

The Food Inspector's Handbook. By Francis Vacher. London: The Record Press, 1892. Pp. ix-140.

Reflex Amblyopia. By J. Walter Park, M. D., of Harrisburg, Pa. [Reprinted from the *Annals of Ophthalmology and Otology*.]



Abscess around the Rectum. A Lecture at the Clinic for Diseases of the Rectum, at the New York Post-graduate Hospital. By Charles B. Kelsey, M. D. [Reprinted from the *Therapeutic Gazette*.]

Piperazin in the Treatment of Stone in the Kidney; Report of Cases. By David D. Stewart, M. D., Philadelphia. [Reprinted from the *Therapeutic Gazette*.]

The Forthcoming Report of the Bureau of Education on Professional Education in the United States. By Bayard Holmes, B. S., M. D., Chicago. [Reprinted from the *Journal of the American Medical Association*.]

Report of the Trustees of the Boston City Hospital on the Advisability of establishing Cottage or Branch Hospitals in the Several Wards of the City.

Roosevelt Hospital, New York. Twenty-first Annual Report. From January 1, 1892, to December 31, 1892.

## Reports on the Progress of Medicine.

### ORTHOPÆDIC SURGERY.

By HENRY LING TAYLOR, M. D.

**Flat Foot.**—Féré and Demantké (*Jour. de l'anatom. et de physiolog.*, p. 431, 1891) give an interesting study of flat foot as a stigma of degeneration. In an investigation of the epileptics of the Bicêtre Hospital they found, among 171 patients, that 66 had double flat foot and 31 flat foot on one side only. These patients, however, are of two classes: First, those referred to the hospital through the bureau for insanity, and, second, those sent for convulsive disorders from the general hospitals. In the number above mentioned there were 106 epileptics referred for mental disorder; of these, 63 had flat foot—47 on both sides, 16 on one side; of the 65 epileptics of the second class, 34 had flat foot—19 bilateral and 15 unilateral; that is, there were 110 flat feet in the first category, or 103 in the 100, and 53 in the second, or 81 in the 100. Thus the flattening of the plantar arch shows itself most often in individuals who have most physical and mental defects. The authors enumerate twelve classes of physical anomalies which they have observed among the subjects of flat foot, among them facial asymmetry, anomalies of the eye and ear, spinal deformities, the presence of the retro-anal fossa, imperfect development of the thorax, hernia, phimosis, anomalies of the fingers and toes, etc. They call attention to the fact that flat foot does not always imply functional trouble, since many mountaineers with flat foot are excellent walkers. Lately, drafted men with flat feet are accepted by the French military authorities, unless the deformity is of a severe grade.

Redard (*Gaz. méd. de Paris*, 32, p. 373, 1892) describes a variety of scoliosis accompanied by flat foot; the worse foot is on the side of the lumbar convexity, and the pelvis slopes toward the same side, most frequently the left. The author maintains that the scoliosis is due to the pelvic obliquity, and finds this variety in twelve per cent. of his cases of lateral curvature. The treatment consists in rectifying the flat foot.

In an excellent essay on the subject by John Dane, A. B. (*Boston Med. and Surg. Jour.*, Oct. 27, Nov. 3 and 10, 1892), tracings are studied from the feet of four hundred children from nine days to fourteen years of age. These show that "at birth the foot does not seem to be flat, as is the general opinion." "From one to eighteen months, arch distinct; sexes alike; one foot better than the other. From eighteen months to three

years, arch mostly lost; exceptions are females. From three to four years, arch building up; unequal in two feet; females tending to form earlier. From four years upward, arch established; sexes alike; both feet equal." For flat foot "general tonic and hygienic treatment is of the first importance." Special exercises are walking with toes pointing directly forward (Whitman); rising on toes and slowly rotating heels outward-Broad, flat-laced boots with a slight inward curve and low-heel shoes should be worn. For the mechanical treatment the author recommends Whitman's plates, for which he takes a mold in warm dental sheet-wax, from which, after oiling, a plaster mold can be taken. He points out that the good to be derived from any form of plate is strictly negative. It prevents the arch from further breaking down, but does not build it up. This must be done by manipulation, special gymnastics, and general hygiene.

Walter C. Wood, M. D. (*Annals of Surgery*, November, 1892), emphasizes three features in flat foot: 1. Partial dislocation at the medio-tarsal joint. 2. Abduction of forefoot, from lengthening of internal border. 3. Some flat feet are rigid, others not. In recent cases rigidity is due to muscular spasm, later to spasm and adhesions between tendinous structures; in old cases to changes in bony surfaces. The writer has observed unfavorable results from Ogston's operation. He favors Thomas's method of building up the inner side of sole three eighths to half an inch in mild and moderately severe cases. For severe cases he advises forcible reduction under an anæsthetic, Whitman's spring, and massage.

**Clubfoot.**—The literature of clubfoot has increased so rapidly of late as to make a selection embarrassing. At the last session of the American Orthopædic Association in New York last September, out of a total of thirty-three papers presented, seventeen were on clubfoot.

Dr. A. B. Judson (*Boston Med. and Surg. Jour.*, Sept. 22, 1892) has made a clear presentation of the advantages of leverage continuously applied to the inner side of the foot, and progressively modified to meet the requirements of the case. He lays special emphasis on the relation of the weight of the body to the pathology and treatment of this affection, urging that the reduction of the deformity be effected in infancy, before the weight of the body in walking is added to the resistance to be overcome, and that the foot be held in an overcorrected position by the continuously acting leverage apparatus, so that the child may, as it were, stamp his foot straight, the body weight acting, under these circumstances, as an aid in correction.

Dr. A. H. Freiberg (*Medical News*, Oct. 29, 1892, p. 477) gives an interesting account of the ideas and methods of Professor Julius Wolff, of Berlin, whose clinic he has personally followed. Two indications are recognized in the treatment of clubfoot. "First, we must bring the foot into proper relation with the rest of the extremity and the body; and, secondly, we must retain it there in functional activity for a sufficiently long time to enable the bones to undergo the necessary metamorphosis as a result of their function." The author points out that all the bones of the foot are involved to a greater or less degree; and "Julius Wolff has shown that the shape of every bone, as well as its internal architecture, are the expressions of the static demands upon it. He has also shown that we are no longer to consider the bones as mere levers of an inert material, but as living tissues, and as capable of accommodating themselves to different changes as are our other tissues."

It follows that any appliance for the purpose in hand must be of a more or less permanent character. Wolff uses plaster of Paris, but in a manner quite different from most operative surgeons—König, for example, who forces the foot rapidly into shape at from one to three sittings, with considerable violence

to resisting parts. By Wolff's method the reduction is gradual and is brought about by a large number of sittings at intervals of a few days, and no violence is used. Slight deformities are treated without tenotomy; in the severe forms tenotomy of the heel cord and sometimes of the plantar fascia is practiced. Great pains are taken with the technique of the plaster dressing, and gradual correction is effected without removing the plaster, by cutting a wedge of plaster from the dressing on the outer side of the ankle joint, prolonging the cut over the front of the joint, and fixing the foot in the improved position by an additional plaster bandage. This is repeated as often as necessary, and correction is complete within four weeks; the cast is then strengthened and the patient is allowed to walk in shoes fitted over the dressing. The patient wears the cast for weeks or years under surgical observation. Wolff denies that forcible redressment or bloody operations are necessary. The writer reports an ideal result in a case of Wolff's, now twenty-eight years old, which was treated eight years ago.

Dr. Bihlant (*Annales d'orthopédie*, April 1 and Oct. 15, 1892) believes that congenital clubfoot should be treated early by careful and not too rapid manual redressment, without tenotomy, and retained in a gutta-percha splint and kept in position and under observation for a considerable time. He reports a successful case where treatment was begun at the age of four days. He believes operative procedures unnecessary except in neglected cases.

**Lateral Curvature.**—Dr. F. Beely, of Berlin (reprint from *Trans. of the American Orthopaedic Assoc.*, 1891), gives an analysis of the osseous deformities in scoliosis resulting from the pressures and strains falling upon the bodies of the vertebrae and their arches. The changes occur according to the law that traction and pressure act as stimulants to the deposition of bony tissue, while macroscopic growth takes place in the direction of least resistance. In concluding, he calls attention to the fact that in many cases of scoliosis the sulcus paraspinosus is in the dorsal region, shallow and broad on the concave side, deep and narrow on the convex side. In the lumbar region, with the curve reversed, the groove is shallow and broad on the convex side, and deep and narrow on the side of the concavity.

Dr. Messner, of Wiesbaden, describes the unilateral atrophy of the thorax and curvature of the spine following infantile paralysis (*Zentralblatt für Chirurgie*, No. 44, 1892). In a hundred and fifty-six cases of lateral curvature the author found eight due to infantile paralysis. Paralytic scoliosis becomes fixed very late or not at all, owing to relaxation and stretching of the spinal ligaments. There is no real rotation or rib deformity, according to the author, even in old and severe cases. In the cases observed, the convexity of the dorsal curve was always toward the sound side, while the paralyzed respiratory muscles were on the concave side. The prognosis, except in severe cases, is more favorable than in the ordinary form of lateral curvature. The deformities should usually be preventable by the use of electricity, massage, innervations, and cold ablutions. The indications for treatment are to hold the spine in position and to strengthen the spinal muscles. For the first the author recommends a light removable jacket applied during suspension; for the second, gymnastic exercises, douches, massage, electricity, and stimulating innervations. The exercise should be given for an hour twice a day, and electricity and massage once daily. The author reports perfect cures in three cases, improvement in four.

**Pott's Disease.**—Dr. John Ridlon (*Medical Record*, Sept. 17, 1892) reports two cases of lateral deformity of the spine with rotation made worse by exercise and improved by spinal support. He concludes that Pott's disease was present as the causative factor.

Dr. Royal Whitman writes suggestively (*Medical News*, Nov.

19, 1892) of the modification and prevention of the ultimate deformities of Pott's disease, especially in the middle region of the spine. He points out that the mid-dorsal region is specially unfavorable as regards the limitation of the amount of the deformity, on account of the normal posterior curving of the spine, the movements of the ribs in respiration, the movements of the arms, and the exaggeration from compensatory changes. "The local deformity of Pott's disease is of slight importance as compared with the effect on the spine as a whole." "Our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of the disease." The author calls special attention to the value of "backward traction on the shoulders and restraint of unnecessary motion of the arms," and to elevation and support of the chin, in order to throw the weight of the head backward. With disease between the fifth and tenth dorsal, and deformity moderate, but the head and shoulders carried forward, the author uses the Taylor brace with the chest piece modified to bear in front of the shoulders by the hollow discs, the size of a butter plate; a fixed chin-supporter is so adjusted as to tilt the head back. Medical supervision throughout the period of growth is often necessary in order to get the best results.

Mr. W. J. Roedel gives an account (*Australian Medical Jour.*, Sept. 15, 1892, p. 424) of his surgical experiences at the National Orthopaedic Hospital, London, of which he was for seven years one of the senior surgeons. He condemns all spinal supports for Pott's disease as inadequate, including "that hollow mockery known as Sayre's jacket." He uses a frame resembling in principle the wire corset to immobilize the entire body "from the crown of the head to the soles of the feet." He reports good results in several cases after one or two years' use of the frame. The patient can be carried about, but is never removed from the frame.

**Hip Disease.**—Dr. Lovett and Dr. Morse (*Boston Med. and Surg. Jour.*, Aug. 18, 1892) describe a transient or ephemeral form of hip disease. The writers ascertained that in the years 1888 and 1889 a hundred and fifty-six new patients with hip disease came to the Children's Hospital, Boston. Of these, thirty-eight made fewer than four visits and disappeared from view. In February, 1892, twenty-four of these thirty-eight could be traced; of these, eleven had hip disease of the ordinary type, while thirteen had recovered without treatment. Of these, eight appear to have been cases of simple acute synovitis, but in the remaining five the bone appears to have been involved, as trochanteric thickening and shortening of the limb could be demonstrated after recovery, which took place in a few weeks or months. The authors conclude that there is a transient form of hip disease which may end in spontaneous recovery within a few months, but does not appear to differ in its symptoms from the usual form.

Dr. Lovett gives (*Boston Med. and Surg. Jour.*, Oct. 13, 1892) a clinical classification of hip disease. He finds four well-marked types:

(a) The destructive form, which is rapid, severe, and but little influenced by ordinary treatment; there is extensive infiltration of soft parts, and in most instances the disease passes on to a fatal issue. This form is due to a florid tuberculosis of bone or to an acute infectious osteomyelitis.

(b) The painful form; pain is a prominent symptom, and exacerbations are common. This is the ordinary form of hip disease and is due to focal bone tuberculosis, where irritation surrounds the foci, and the tendency is to purulent degeneration.

(c) The painless or quiet form, due to the fibroid form of focal bone tuberculosis, with little irritation. In these cases spasm and atrophy are prominent symptoms, and the course is slow with a tendency to ankylosis.

(d) The transient or ephemeral form, due probably to a focus of tuberculosis, which is rapidly absorbed, or is so distant from the joint as to cause little or no synovial irritation.

In a discussion on coxalgia and the serious articular affections of the lower extremity at the Imperio-royal Medical Society of Vienna (*Mercredi médical*, Paris, Nov. 23, 1892, p. 568), Dr. Lorenz stated that the object of mechanical treatment was to relieve pain, thus enabling the patient to sleep, and to permit the patient to live as much as possible out of doors. Pain was generally due to reflex spasm and was relieved by thorough fixation; extension in addition was not indispensable. In cases with little deformity the author preferred his plaster cuirass, consisting in a negative of the posterior aspect of the trunk and affected limb; to this an extension apparatus was added.

Dr. Albert protested against the indiscriminate and routine employment of either extension or excision. His results were less favorable (two cures in thirty cases) than Dr. Lorenz's. He had obtained good results from ignipuncture of the superficial joints.

Dr. Billroth was of the opinion that the modern treatment was better than the old. He believed in preliminary redressment in inveterate cases; afterward he used an immobilizing apparatus. He said that resection never gave a good functional result. He seldom found night pains or gonalgia in hip disease, and he found early abduction in only ten per cent. of the cases.

Mr. Poliard and Mr. Marshall give an elaborate report (*Lancet*, July 23, 30, and Aug. 6, 1892) on 37 cases of tuberculous disease of the hip joint, for which excision of the joint was performed in 36 cases; the remaining case was an arthrotoomy, the acetabulum alone being diseased.

The right side was affected in 19; the left in 16; not recorded, 2. In 10 cases the cause was assigned to a fall or blow on the hip. One case occurred while a double hip splint was being worn on account of disease of the other hip.

*Duration of the Disease before Operation.*—Less than one year, 13 cases (of these, 5 less than six months). Between one and two years, 14 cases. Over two years, 10 cases. Abscess in front of the great trochanter, 29 cases; abscess behind the great trochanter, 3 cases; not recorded, 1 case. Four cases had discharging sinuses before operation. In 35 cases the head of the femur and the acetabulum were denuded of cartilage; in 5 the trochanter was also diseased; in 1 the acetabulum alone was diseased; in 1 the head of the femur was removed as a sequestrum. The anterior incision was practiced thirty-three times; the posterior, four times.

*Results of Operative Interference.*—Five died before healing of the wounds—2 of shock, 1 of iodoform poisoning, 1 of collapse on the eighth day, 1 of tubercular meningitis in eleven weeks. Eighteen wounds healed by primary intention. Fourteen healed in from three to five months. In 26 of the 32 cases in which the patients survived the excision, or all but 6, recurrence of the disease took place; of the remaining 6 patients, 1 died of diphtheria four weeks and a half after the operation.

In 12 cases there was recurrence of bone disease. One or more secondary operations were performed in the 26 relapsed cases.

In the patients that recovered from the excision, improvement of the general health and relief from pain were observed.

Of 17 completed cases they report as follows: Shortening between one and two inches in 9; two inches in 5; over two in 3 cases; average shortening, 1'85 inch. Most had some abduction, so that the average apparent shortening was 1'3 inch.

In regard to motion, the cases resulted as follows: Immo-

bility of joint, 2 cases; little mobility, 4 cases; considerable mobility, 11 cases.

Flushing with Barker's flushing curette was done in 12 cases; 1 patient died of shock. They remark that "recurrence of disease appears to occur frequently, whatever method of treatment be adopted" (page 303). Seven cases were treated without drainage; in eight cases drainage was used from eighteen to forty-eight hours; in thirteen cases it was used from four days to several weeks.

There was healing by primary union in 71'4 per cent. of cases treated without drainage; in 75 per cent. of cases treated by drainage up to forty-eight hours; and in 53 per cent. of cases treated by drainage longer than forty-eight hours.

Of 18 wounds which healed by primary union, 4 remained sound when last seen, one year to two years and five months after the operation; 1 patient died of intercurrent disease; 1 case was uncertain; 12 cases relapsed, in 5 of which there was relapse of bone disease.

Of 20 cases (17 completed cases, and 3 which remained healed more than a year after primary union), 16 relapsed; 5 patients had one secondary operation; 5 had two secondary operations; 3 had three secondary operations; 2 had four secondary operations; 1 had five secondary operations.

The authors remark that "the results, if considered from all points of view, appear to us to be much less encouraging than the advocates of the methods followed were led to anticipate would be the case."

## New Inventions, etc.

### A NEW NEEDLE.

By D. TOD GILLIAM, M. D.,  
COLUMBUS, OHIO.

ALL needles with a handle are open to one objection—viz., they are too heavy. Another serious objection to those commonly in use is the difficulty in threading, as the process of threading has to be repeated every time they are thrust through the tissues and withdrawn. If a good-sized eye is made, it is at the expense of a cumbersome and formidable instrument—too large to be thrust through the tissues with impunity. Then, again, the eye of the needle is its weak point, and it is here that the needle almost invariably breaks. If they are constructed so as to thread from the side, they are still more bulky and are apt to cut the suture or ligature, which in the latter event may



prove a serious matter, as I have known disastrous consequences follow the ligation of an ovarian pedicle with a thread weakened in this way. In order, as much as possible, to obviate these defects, I have had constructed for me by Messrs. George Tiemann & Co. the needle herewith shown. It differs from other needles in that it is provided with an automatic steel spring eye which disappears in passing through the tissues and reappears when the pressure is removed. The eye, which consists of tempered steel wire, is sprung into a little slot on the concave side of the needle near its point, this part of the needle being tubular. On



the principle that a tube with its wall of proper thickness is stronger than a solid rod of equal diameter, the needle is not weakened, but, if anything, made stronger than a solid needle. There is no eye to weaken it at this point or to increase its diameter. The needle penetrates easily, the spring yielding kindly to the pressure of the tissues and springing out again, presenting a large eye immediately the pressure is removed. Should the spring break or rust, or if for any occasion it should be desirable to remove it, it can easily be replaced by another. It has a wide range of application as a suture and ligature carrier, and has the advantage of being always ready. I am indebted to Messrs. Tiemann & Co. for suggestions in perfecting the instrument.

## Miscellany.

The Section in Laryngology and Rhinology of the Pan-American Medical Congress is now thoroughly organized with secretaries in all the countries of South America as well as in the United States and Canada. The president, Dr. E. Fletcher Ingals, of Chicago, is making a thorough canvass to secure a large number of good papers for the section, and, aided as he will be by the able secretaries, Dr. Murray and Dr. Maron y Alonso, and the corps of honorary presidents, he feels assured of the success of this department of the congress. The honorary presidents are:

Dr. Harrison Allen, Philadelphia; Dr. Francke H. Bosworth, New York; Dr. J. Solis-Cohen, Philadelphia; Dr. D. Bryson Delavan, New York; Dr. J. F. Dixon, Portland, Oregon; Dr. Stephen Dodge, Halifax, Nova Scotia; Dr. W. C. Glasgow, St. Louis; Dr. Frederick I. Knight, Boston; Dr. George M. Lefferts, New York; Dr. Alvaro Ledan, Villa Clara, Cuba; Dr. John N. Mackenzie, Baltimore; Dr. David Matto, Lima, Peru; Dr. P. Emelio Petit, Santiago, Chile; Dr. John O. Roe, Rochester, N. Y.; Dr. Federico Semeleder, Mexico, Mexico; Dr. Charles E. Sajous, Paris, France.

The secretaries for foreign countries are: Dr. Ovejero, [Piedad 22] Buenos Ayres, Argentine Republic; Dr. H. Guedes de Mello, Rio de Janeiro, U. S. of Brazil; Dr. G. W. Major, Montreal, Canada; Dr. Felix Campuzano, [Virtudes 33] Havana, Cuba; Dr. Luis Fonnegra, [Calle 10, Número 263] Bogotá, Colombia; Dr. Fabricio Uribe, Guatemala, Guatemala; Dr. Henri Goulden McGrew, Honolulu, Hawaii; Dr. Angel Gavino, [Cocheros 15] Mexico, Mexico; Dr. J. Midence, Leon, Nicaragua; Dr. Eugenios Cassanello, [San José 119] Montevideo, Uruguay; Dr. Napoleón F. Cordero, Merida, Venezuela.

All physicians interested in this section are requested to correspond with one of the secretaries for the United States, Dr. J. Maron y Alonso (Spanish-speaking), Las Vegas, N. M., and Dr. T. Morris Murray (English-speaking), Washington, D. C.

**The Physiological Action of the Active Principles of Urechites suberecta.**—Mr. R. B. Wild contributes to the February number of the *Medical Chronicle* the following abstract of an article by Mr. Ralph Stockman, in the *Laboratory Reports of the Royal College of Physicians, Edinburgh*, vol. iv: The *Urechites suberecta* belongs to the natural order *Apocynaceae*, and grows abundantly in Jamaica and other West Indian islands, where it is known as the "savanna flower" or "yellow-flowered nightshade." It is notoriously poisonous, and is supposed to have been the chief poison used by "Obeah men" in the time of slavery.

Bowrey separated from the leaves two active substances—*urechitin* and *urechitoxin*. These are both glucosides, with an intensely bitter taste when in solution; the former is insoluble, the latter slightly soluble in water. Experiments with urechitin showed that it is a very active poison, similar in its general action to digitalin. The isolated frog's heart in "Williams's apparatus" was killed in nine minutes by a solution containing 1 part in 200,000, and in two hours by a solution of 1 in 10,000,000. The blood pressure in rabbits was raised in the early

stages of poisoning, and fell in the later stages until the heart stopped beating. Rabbits were much less susceptible to the poison than dogs. Urechitoxin also proved to be a muscle and heart poison, but very much less active than urechitin; neither substance caused contraction of the blood-vessels of the frog when locally applied. With regard to the marvelous stories told of the poisonous action of the plant, there is a certain admixture of truth and falsehood—a full lethal dose will be fatal within a few hours or a day or two; a single dose of the poison can not be so administered as to be fatal after the lapse of days or weeks. On the other hand, if repeated minute doses be given, there seems to be no doubt that an animal or man may remain all the time in apparently good health and then die suddenly. The explanation of the long-delayed action and sudden death in such cases is to be found in the well-known accumulative action of digitalin and similarly acting bodies; the small repeated doses cause an accumulation of the poison in the heart muscle until a stage is reached when the heart is so thoroughly poisoned that death ensues from cardiac failure.

It is improbable that *Urechites suberecta* will ever prove to be of value as a cardiac tonic, as it possesses in a high degree the objectionable accumulative properties which have been so often remarked in the case of digitalis.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and new conditions can be considered after the manuscript has been put into the typesetters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Societies of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

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Original Communications.

THE INTIMATE NERVOUS CONNECTION OF THE GENITO-URINARY ORGANS WITH THE CEREBRO-SPINAL AND SYMPATHETIC SYSTEMS.

By FRED BYRON ROBINSON, M. D.,  
CHICAGO.

EVERY observing physician sees a very close connection between the genital organs and the nervous system. This is not strange when one looks at existing facts and the long-continued effects of evolutionary forces. Of all instincts of the animal race, the sexual instinct is the most dominant. The sexual instinct has an all-pervading influence in every species of animal. It governs their action. It forms habits on their lives. It induces new phases of existence. All through the stages of animal evolution, every other instinct must bend to the sexual instinct. Physical and mental forces wonderfully combine to make this sexual instinct the most effectual in its consummation. The sexual instinct dominates the most powerfully in males, and hence the physical and mental vigor of the best animals in the race survive. The cow in rut is served, from sheer physical and mental vigor, by the most powerful bull. In herds of animals the sexual instinct dominates most vigorously in the finest males, and they toss aside the weak males, to become the parent.

The main study of zoology is reproduction. The weapons of offense and defense possessed by males are primarily to cultivate and defend the sexual instinct. The horns of bulls, the powerful heels of stallions, the eagle's talons, and the claws of powerful feet, are the weapons to defend and to carefully cultivate the sexual instinct—the dominant instinct of animal life. When we pass on to man, the sexual instinct is rather heightened than diminished. But in man the sexual instinct is couched in a more subtle place than physical tenements; secretly in the depths of man's mental forces lies his sexual instinct. As man has gained the ascendancy of animal life by his wits alone, so by his wits alone can be studied his sexual instincts. Thus in the lowest form of physical existence sexual instincts dominate, yet in the higher forms of mental existence the sexual instincts are still more powerfully dominant. From such premises, patent to all observers, it is quite obvious that evolutionary forces have through long ages established a very close connection between the nervous system and the genitals—the organs which gratify the sexual instinct. Forces (mental or physical) acting through eons of ages will establish very definite matters. Here I should like to lay down a few distinct propositions so that the ideas in this little communication may be more clearly understood. The first idea is that an ideal nervous system consists of (1) a ganglion cell, (2) a conducting cord, and (3) a peripheral apparatus. The second idea is that the increase of man's intelligence is not by the increase of *ganglion cells*, but by the increase of *conducting cords*. Chicago and New York may each represent a ganglion cell,

and a single railroad may represent the conducting cord. Now, when there was but one railroad between New York and Chicago, but little business could be done on account of the limited amount of commerce which the single road could accommodate. Chicago and New York, as the ganglia cells, could dispose of far more business than the single road could transmit. But when the railroads multiplied between the two centers, the business increased just in proportion to the number of roads or conducting lines. Now, one could infer that the industrious work of ages of natural forces would have established numerous lines, and vigorous lines, of connection between the genitals and the nervous system. The facts which dissection show are positive in demonstrating the widespread and intimate connection of the genitals with the cerebro-spinal and sympathetic systems.

The ganglion cells can receive and dispose of far more mental work than a few conducting cords can transmit; so that the progress and advance toward a higher nervous system and a higher intelligence is an increase in the conducting cords or lines to transmit intelligence or ideas. Also a well developed periphery is an absolute necessity for the purpose of collecting ideas to transmit. An increasing sensitive periphery is required to perceive forces and comprehend ideas so that they can be sent to the central ganglia. Now, the number of conducting cords which attach the genitals to the nervous centers is simply enormous. Besides, the nerve periphery, situated in the external genitals, is highly sensitive and highly developed, so that it quickly perceives and quickly transmits the slightest sensation, and also evolutionary forces through the ages seem to increase the sexual instinct with the progress of intelligence and mental growth.

I base my remarks on several years of careful dissection of many cadavers and animals. If one carefully dissects the body of a man he will note the extensive cerebro-spinal nerves supplying the genitals, especially the penis. Of the spinal nerves supplying the genitals, the main one is the pudic. But the pudic nerve is composed of nearly all the third sacral, and branches from the second and fourth sacral. As one examines this nerve he is forced to the conclusion that it is an enormous supply for a small organ.

The periphery of the pudic nerve spreads itself like a fan over the genitals. And also the branches of this fan-like nerve-apparatus supply—the genitals, bladder, and rectum—organs which must act and work in harmony. Hence the great disturbance which arises in the pelvis (bladder, rectum, or genitals) when any one organ is damaged—*e. g.*, a rectal fissure, a urethritis, or penile irritation quickly sets the whole system akimbo and Richard is not himself. The vast connection of the pudic nerve with the external genitals (where sensation is experienced) is remarkable. Not less remarkable is the wonderfully harmonious action of the bladder, rectum, and genitals through large branches of the same pudic.

Another peculiar spinal-nerve connection of the external genitals is the supply of the pudendal nerve to the lateral walls of the penis. I have time and again called the attention of medical men to the peculiar connection be-

tween the glutæus-maximus muscle and the external genitals by means of the pudendal nerve or branch of the lesser sciatic. The glutæus maximus is the real muscle that holds man upright (physically), but it is also the main muscle of coition. The lesser sciatic nerve supplies only one muscle, and that is the glutæus maximus, and then it sends off the large pudendal branch to the sides of the penis, and hence the friction of coition induces active contractions of the glutæus maximus in cohabitation. Hence the spinal-nerve supply to the external genitals is mainly the large pudic and pudendal nerves. In woman the pudic nerve is equally large; but the pudendal nerve is much smaller in woman than in man, according to my dissections. The lesser size of the pudendal nerve in woman is in direct accord with the methods of cohabitation. The vigorous and aggressive activity of man in coition, and the quiet, passive receptivity of woman, explains the larger pudendal nerve in man. But the reverse nerve supply arises in regard to the glans clitoridis and the glans penis. I have dissected many a clitoris, and its nerve supply is three or four times as large as that of the penis in proportion to its size. The clitoris of woman is a veritable electrical bell button, which, being pressed or irritated, rings up the whole nervous system. And certainly I have found for quite a while that adhesions of the prepuce to the clitoris have led to masturbation in girls. Every gynecologist should examine the clitoris, and, if preputial adhesions exist, simply break them up, for the vast nerve supply of a woman's clitoris gives great chances for profound irritation. The poor girl, neglected by mother and possibly by doctor, is soon induced by the itching to become a masturbator.

My attention was directed to the study of the clitoris three years ago, and I find many a clitoris with preputial adhesions, and when I break them up the patient will frequently relate what a "terrible itching I have had for years there." "But," she would say, "I did not dare to mention it to the doctor." But the extensive spinal-nerve supply to the external genitals, though vast and intimate, is but a small matter relative to the supply to the internal genitals. The spinal-nerve supply to the external genitals is mainly sensitive, so that the sexual instinct may be gratified by the organs, and that the functional pleasure may be worth the effort. What I wish mainly is to call attention to the profound connection of the internal genitals with the nervous system by means of the sympathetic system. It is in this field that the gynecologist and the genito-urinary surgeon find full play for lucrative operations—for so-called aggressive surgery. In manipulations and instrumental examinations of the genitals is where and when one sees the nerve storms flash over the system. These nerve storms radiate over distinct nerve plexuses like electricity over a system of wires. Take, for example, the uterus. Its sympathetic nerve supply is enormous. The cervix only, so far as I can see, has spinal nerves, while the body and fundus is supplied by the sympathetic. One can count some twenty or thirty strands of nerves in the hypogastric plexus which originates in the abdominal brain and terminates in the uterus, and the nerves are very large. The ovarian plexus—a very large plexus—goes from the abdomi-

nal brain, and many of the nerves of this plexus terminate on the tubes and fundus of the uterus, so that the sympathetic nerve supply to the uterus is enormous. The result of a large nerve supply to any organ is its danger of sad complications and stubborn pathology. I have seen a patient in the gynecological chair make active efforts to vomit in less than fifteen seconds after I carefully introduced the sound. In those ten to fifteen seconds a complicated nervous phenomenon had occurred. The irritation of the endometrium had been flashed up the hypogastric plexus to the abdominal brain, and there it was reorganized and dashed over the various plexuses to other viscera. The irritation, no doubt, went to every viscus similarly, but I knew it went to the stomach, because it manifested itself in motion (vomiting). The heart, lungs, liver, spleen, and digestive organs no doubt suffered similarly, but they were better able to resist the irritation. A study of the hypogastric plexus and its action on the uterus convinces me that pressure on the aorta for post-partum hæmorrhage is generally explained wrongly. It is said the pressure obstructs the blood, but the real process is that the pressure on the hypogastric plexus irritates the peripheral end in the uterus, and it induces the uterus to contract. This is more reasonable. The dominating influence of uterine disease among women is due to the vast and intimate connection of the uterus (tubes and ovary) with the sympathetic nervous system. Besides, a great and complicated network of nerves is easily deranged. The importance of the uterus demands a vast and complicated nerve supply, and such an organ often dominates a woman. It may be laid down as a general proposition that the viscera have their normal function in rhythm, and the disturbance of the rhythm is what induces disease. It may also be said that the main pathology of the sympathetic is reflex action from some distant viscus.

Another idea may be noted—that the ganglia controlling the viscera are entirely out of the control of the will. If the visceral movement was not involuntary or out of the mental sphere of the mind, men would speculate and experiment on their viscera. Now, the viscera being out of mental control no doubt explains the curious action of ill or neurotic women. The nerve storms which emanate from a pathological uterus flash over the whole system by distinct nerve plexuses, and, as the will does not control any of such reflexes, the patient acts on the induced feelings. The close nervous connection of the uterus with the nervous system is at once seen in the great changes which uterine disease induces in both the mental and physical life of a woman. But anatomical facts, physiological experiment, and clinical study all show that the genitals and nervous system are more highly and intimately connected than any other system. No organ influences a woman mentally or physically to such a degree as the uterus, even in its normal physiological and anatomical condition, while its pathological condition is still more manifest. It is owing to the very distinct connection of the genitals with the cerebro-spinal and sympathetic system. Let a woman's genitals become pathological and she gets liver disease, she gets indigestion, and she becomes anæmic and terribly neurotic. Uterine disease induces eye disease, it induces heart trou-



ble, and the joints and muscles do not escape. A woman with pelvic disease often acquires hip, knee, or ankle trouble. This is no doubt due to the intimate connection of the uterus with the hip, knee, and ankle joints through the sacral plexus; *e. g.*, the sacro-iliac joint, the hip joint, and the knee joint are all supplied by three distinct nerves—*viz.*, the great sciatic, the anterior crural, and the obturator. Now, these three nerves are really the sacral plexus. A woman gets cold at the monthly period so easily from wet feet no doubt from the close connection of the uterus with the sacral plexus, but the lower end of the sacral (the sciatic nerve) supplies the feet which get wet. The disturbed circulation of women afflicted with uterine disease is owing to the powerful reflexes sent over the great hypogastric plexus, and the normal rhythmical contractions of the heart and its blood-vessels are broken by reflexes due to uterine disease.

But the woman alone is not afflicted with reflexes from the genitals, for no doubt man thinks of his genitals a little more than woman does of hers. The genito-urinary surgeon who deals with men afflicted with urethral disease full well knows how terrible is the effect of the mere introduction of a sound into the bladder occasionally. A healthy man will frequently faint from simply the introduction of a sound, and if the urethra or genitals are long diseased he will be profoundly shocked. This means that the urethra is extraordinarily supplied with nerves. I do not see, so far, any better explanation of so-called urinary fever after the introduction of a catheter than that it is "reflex." The urethral irritation may travel in two ways and act in two ways: 1. It may travel up the spinal cord to the heat center either by the sacral plexus through the cord or through the splanchnics through the cord and thus disturb the heat center. But more probably the urethral irritation is transmitted up the hypogastric plexus to the abdominal brain and there reorganized and sent out on the various plexuses. But it goes out on the renal plexus more vigorously owing to the more intimate connection existing between the kidney and the genitals—*e. g.*, the ureter has a plexus, the testicle has a plexus, and also a part of the hypogastric plexus forms part of the renal plexus; and also originally the kidney and genitals arose from the same body—the Wolffian. Now, the reflex irritation induced by the catheter on the urethra then flashes up the hypogastric plexus, and the reorganized forces are sent to the kidney and the irritation acts on the kidney to change its circulation—it is congested and urinary fever follows. The fainting of patients on the introduction of a catheter is explained on the same principle. The high nerve supply to the urethra being disturbed, the irritation is transmitted to the abdominal brain, where it is reorganized. The reorganized forces are then radiated out on the various sympathetic plexuses, but especially does it travel over the three great splanchnics up to the three cervical sympathetic ganglia. The irritation is reorganized in the three cervical ganglia and transmitted by their three nerves to the heart, which it induces to move in a riotous manner. The heart is weakened and the patient faints. The irritation of the genitals being sent to the abdominal brain, it induces dilatation of the abdominal visceral circulation, and this probably explains the rise of

temperature. Occasionally the introduction of a catheter kills a patient, but that is due to the final weakness of a patient after a long-continued exhausting disease. Thus the nerve storms arising from the genitals are entirely due to the abundant and extensive nerve supply. The irregular nerve storms arising in genitals highly supplied by nerves are profound in their invasion of the whole system. They pervade all active organs and disturb rhythm and induce further reflexes. Reflex action from the sympathetic explains much disease—*e. g.*, when a man begins "catheter life" he begins to ring his own death knell, because by the use of the catheter he induces reflexes which will remorselessly follow him to death. Besides, he soon introduces infection into his urethra and kidneys by his dirty catheter.

Thus the man goes through three stages on his road to the grave: 1. He has acquired some form of obstruction to the outflow of urine from kidney to penis. 2. He introduces the catheter, which calls up the wide domain of reflexes. 3. He introduces infection, and death follows. If the genitals were not so highly supplied by nerves, the terrible reflexes would not arise. As an application of the extensive sympathetic nerves to the genitals and its wonderful reflexes, let us examine for a moment the result of coition. The subject of fainting, vomiting, and death has interested me for some time, especially when I was a boy on a dairy farm. On the farm I saw much breeding of animals, and the incidents connected therewith were very puzzling, as I did not see any explanation of them. But I feel convinced now that the explanation lies in the sympathetic nerve through its rhythm and reflex. The most impressive scene will be when one observes the young stallion cohabit with the mare for the first time, for the stallion is apt to fall down, at the end of a very short, vigorous coition, in a dead faint. His eyes roll upward, and he looks as if he were dying. After a few minutes he recovers, and slowly seems to become himself again. The irritation due to the first evacuation of the vesiculæ seminales is rapidly sent to the abdominal brain and then reorganized and transmitted to the cervical ganglia. Then it is flashed to the heart and induces irregular, rapid, and hence weak cardiac action, which causes the animal to faint. Besides, no doubt, the irritation goes right on from the cervical ganglia over the carotid to the vascular area of the brain, and there induces anæmia, and thus faintness. I know of a mare falling dead immediately after coition, but this was probably due to rupture of the left middle cerebral artery. It is frequent to observe young bulls faint away at the first connection with a cow, and it is very common to observe the young bull so exhausted that he sneaks off to a quiet corner or slyly lies down for a couple of hours. I never saw fainting with dogs; but the dog's connection is prolonged, and thus limits shock; and also a dog has no semen sacs, so that probably diminishes shock. The boar has an intensely impressive coition, which violently affects his visceral organs in their rhythm. His respiration is disturbed, and the orgasm rises to such a pitch that he seems on the verge of pain. Though it affects a young boar to have connection the first time with a sow, I never saw one faint. But he is frequently very weak and appar-

ently exhausted for a couple of hours. All this profound impression in the coition of animals is due to the irritation being sent to the abdominal brain, where it is reorganized and radiated out on the plexuses of the various viscera. The sudden, short irritation deranges the normal rhythm, and hence the pathology of fainting and vomiting. The disturbance of rhythm will be the most manifest in that organ most sensitive or most essential to normal life. The same rules apply precisely to man.

Men during coition occasionally faint, vomit, defecate, urinate, or die. The celebrated Skobeloff, general of the Russian army, died while cohabiting with an ill-famed girl. I know of a noted judge who died shortly after connection with a girl in a brothel. I am acquainted with a sad affair in a small town in Ohio where a man of seventy went to a house of ill fame and had connection with a young woman, and died at the end of the coition. In Chicago, a short time ago, at one of the principal hotels, a man of probably forty-eight was found dying after cohabiting with an accommodating widow. My friend Dr. Miller has related to me that he was acquainted with a young couple at whose first coition the husband fainted away and his bowels moved involuntarily. The mother-in-law, being called, promptly restored the young son-in-law to himself. A medical man related to me a few months ago that an acquaintance of his, about sixty years old, had connection with a strange woman and fell dead as he walked to the door immediately after the act. All such deaths that I know or have read of have occurred in elderly men. The smaller manifestations, such as fainting, vomiting, urination, and defecation, have all occurred in quite young men—mainly at the first coition. The elderly men scarcely ever die while cohabiting with their wives, as they are familiar with them, and the excitement of the orgasm is not so violent or intense. It generally occurs with an old man (in age, if not years) in a first coition with a strange woman. Death may occur with an old man who has not had connection with his wife for a long period, especially if the orgasm is intense. I do not include in such a subject the rupture of some pelvic tumor due to coition. Stilla, King of the Huns, died while cohabiting with his young wife. The explanation of the matter lies in the sympathetic nerve and its reflexes. The irritation of the penis due to friction, and of the semen sacs due to spasm and evacuation, is transmitted to the abdominal brain and there reorganized. The accumulated irritation in the abdominal brain is radiated rapidly and on the various directions of least resistance. It rapidly ascends the splanchnics and is reorganized in the cervical ganglia and sent to the heart. The irritation sent so suddenly to the heart at first violently stimulates it to a vigorous action, so that the blood pressure is raised to a high tension in the brain, especially in the left cerebral artery. Old men often have friable degenerated arteries, and this sudden rise of blood pressure induces the middle (left) cerebral artery to rupture, and thus arises the death from coition. The primary cause is the reflexes arising from the semen sacs and genitals. The orgasm is more intense in males, and hence they die more frequently. Females rarely suffer, owing to the orgasm being slowly induced and prolonged.

The rôle played by the vaso-motor centers should not be lost sight of. I have found, time after time, that the ganglia of the lateral chain of the sympathetic, situated at the root of the pudic (third sacral), were very large, and this will aid in transmission of irritation.

*Conclusions.*—1. The sexual instinct is the most dominant instinct of animals.

2. Evolutionary forces have linked the nervous system and the genitals by numerous and intimate bands which increase with the progress of higher development—i. e., sexual instincts dominate and influence the monkey, ape, and man far more than the lower grades of animals.

3. By reason of the growing and increasing intimate relation between the genitals and the nervous system, mental forces play a greater rôle in the production of disease.

4. I have observed that the monkey is an inveterate masturbator in confinement, and his great and persistent attention to his genitals shows that the significance of sexual instincts keeps pace with his mental progress.

5. The severe shock arising from vaginal hysterectomy shows that the uterus has an extensive nervous connection with the abdominal brain. In this operation one cuts off the great hypogastric plexus, and I have seen an alarming rise of temperature (103°), disturbed respiration and circulation—all from cutting the hypogastric plexus. The disturbance was not due to infection, as almost all of it arose a few hours after the operations. Occasionally taking out the appendages shocks, but, as the ovarian plexus is small, the shock is limited.

6. The genital and the urinary organs both arise from the same Wolffian body, so they are anatomically and physiologically connected, and both have an enormous nerve supply, so that damage to one often injures the other by reflex—e. g., vaginal hysterectomy I have known to cause death by inducing nephritis a few days succeeding the operation. The test tube was three quarters full of albumin under the heat test.

7. The close connection between genitals and nerve system is clearly seen from the terrible nerve storms which flash over the system from irritation (manual, instrumental, or pathological) of the genitals—e. g., irritating the clitoris quickly disturbs the woman's whole nerve balance.

8. The great nerve connection of genitals and centers indicates that all irritation should be at once removed. All preputial adhesions on the clitoris should be broken up, and the same with those of the prepuce. In short, all pathological conditions of the genitals should be at once righted, so that the nerve balance may be maintained.

#### A FEW SUGGESTIONS UPON THE TREATMENT OF FRACTURES.\*

By G. W. KING, M. D.,

BELENA, MONTANA.

UPON a former occasion I brought to your notice the subject of fractures, and in a general way demonstrated how unattainable were perfect cures by our present methods of treatment. It is my purpose at this time to discuss ways

\* Read before the Montana State Medical Association, May 29, 1892.

and means whereby we may lessen the probabilities of permanent deformity after fractures. That the outcome of these injuries is doubtful is evidenced by the fact that no reputable surgeon can conscientiously promise a perfect cure in any case. When the orthodox treatment fails, what are we to do? Follow it implicitly, instead of attempting to devise other and better means? The interests of our patients demand progress in all departments of surgery. Mechanical skill is therefore an essential qualification of the practical surgeon. Without it none can hope to excel, much less avoid many and serious blunders. The ability to see things mechanically, to detect ordinary imperfections, to know when they are out of shape or plumb, is not given to every one alike, nor can it be cultivated without persistent labor. Manual dexterity becomes as necessary to the operator as to the musician. Something more than the skill to read music fluently must be accomplished by the latter; his fingers are trained by constant practice to touch each key with accuracy at the proper instant, producing harmony instead of discord.

To know all the steps of an operation is one thing; to execute them in a masterly manner is another. Special training for the work is absolutely demanded in either case. There are very few cases strictly surgical that do not require the services of the hands as well as of the head.

One of the early writers, speaking of the qualifications of the surgeon, says: "He should have a firm, steady hand, not liable to tremble, and be no less dexterous with the left than with the right." When we consider how vast has been the field of research in medicine and surgery, and how rapid has been the progress of the latter in recent years, it is apparent that to become equally skilled in all departments is beyond the scope of the individual. There must, therefore, be in every physician's practice certain branches in which he becomes proficient at the expense of that which remains. The hurry and worry of general practice leave no time for special work—indeed, so exacting does it become that only those with extraordinary physical endurance can long withstand its demands.

Division of labor is therefore an advantage in that greater skill may be acquired by those whose work is limited to certain lines of practice. Naturally, the experience of one who treats but a single fracture in a year is not considered nearly as conclusive as that of one whose cases are numbered by the hundreds, and yet much may be learned from a single fracture, especially if it is complicated and turns out badly.

The principles laid down by writers centuries ago have not been changed—indeed, the indications are so plain that the most ignorant can not mistake them. To place the broken ends of the bone in apposition and retain them, at the same time preserving the normal relation of the limb, is the sum and substance of all treatment. This is what the savage, with his thong of buckskin and sticks interwoven, attempts to do and often succeeds. This is what the skillful surgeon, with his splints and dressings, hopes to accomplish, and often fails, because he is bound by precedent, from which he can not deviate without endangering his reputation.

The reduction or the so-called setting of the fracture is the most important part of the treatment. Whatever displacement persists under the first dressing is liable to become permanent. After effusion takes place and the muscles lose their elasticity, there is little hope of correcting longitudinal deformity. The golden moment has passed. Accurate knowledge is necessary to enable one to decide when the reduction is complete, for it is possible for the normal contour of the limb to be preserved when the fragments of the broken bone are far asunder. If such a condition remains unrecognized until the swelling disappears, it will be too late to apply the remedy. The skillful handling of fractures is not so simple a matter as many believe it to be. Failure to approximate the fragments means months of suffering to the patient, a prolonged convalescence, and perhaps permanent disability. Look at the tremendous task imposed upon Nature when a fracture remains unreduced. The fibrinous material, instead of exuding between the fractured ends as it would do were they in apposition and kept quiet, must bridge over the intervening space at a great disadvantage. The only wonder is that union takes place at all.

Since reduction and retention is the treatment, it should be made as absolute as possible. Mobility of the fragments is directly antagonistic to prompt union. The excessive exudations caused by it must be subsequently got rid of by the slow and unsatisfactory process of absorption. Time is an important consideration to those who have to depend upon their daily labor for the support of themselves and families. It is among this class that such accidents most frequently occur. For humane reasons, then, as well as for his own reputation, the surgeon can not afford to omit any of the details of treatment that are likely to aid in bringing about a speedy cure. The important question of how we shall put up our fractures can not be definitely answered—the royal road has not been found.

Most of us have been familiar since our student days with all the plans recommended and in use. Yet, were we called upon at this moment, what form of retention from among the multitude would we choose? It might be urged with some reason that the choice would be governed by time and place, the means available, and so on. True, circumstances may have weight; emergencies must be met wherever they occur, whether our resources are limited or otherwise. Some forms of dressing are difficult to manage and require an expert to succeed with them. Take, for example, the common board splint. He who attempts to fit it to the irregularities of a limb has my sympathy, for I know he has undertaken an impossible thing. He may be able to make a compromise—that is all; and that compromise may be fraught with danger, for even a little tension applied to the wrong point will do irreparable injury to a broken limb. For this reason, and the constant readjustment necessary to make them of any use, they can now be profitably superseded by something better. After having tried most of the materials recommended for splints, I have come to rely upon the plaster-of-Paris bandage as the most efficient dressing for fractures yet introduced.

Referring to personal experience, I have a record of



twenty-five recent cases of fracture of lower extremities, comprising two intracapsular, one through condyles of femur, two through middle third of femur, eight of tibia and fibula, four of these being compound; two of the latter were accompanied by fractures of femur upon opposite side. There were twelve cases of fractures of fibula. Nearly all of these injuries were seen immediately after they occurred, and, with one or two exceptions, the plaster bandage was applied as a primary dressing. The result in the main was excellent. Two of the cases only presented any marked degree of disability. Both were what is known as "Pott's fracture," one being complicated with fracture of internal malleolus with wedging of the astragalus, rendering complete reduction impossible. The other patient recovered, with limited motion in the ankle joint.

Now, as to the technique of applying the bandage. At our last meeting I exhibited sketches of an apparatus for that purpose. I now take pleasure in presenting you with the latest model of the instrument itself. As stated at that time, the principles involved in its construction are the application of extension and counter-extension, with the limb suspended and fully accessible. Assistants are not required, for the instrument itself is more reliable. After the limb is once placed in position and the tension applied, all that remains to be done is the simple application of the bandage. The traction is so steady and gentle that no pain is experienced during the process. Muscular action—the principal obstacle to successful reduction—is easily overcome, and we no longer have to see our patients writhing with pain while the twisting and pulling formerly practiced are going on. Another important consideration is that we are able to prevent displacement while bandaging the limb. After the plaster hardens, the instrument is easily removed. It is usually preferable to lay the limb upon its outer side in the flexed position until all tendency to muscular spasm has passed away. There is then no objection to extending it horizontally, if the comfort of the patient requires it.

When the fracture is compound, and it becomes necessary to leave an opening in the splint, I prefer to make it thus:—

Fractures of the arm and forearm can be reduced by the instrument with equal facility; and in emergency cases, where no assistance is at hand, the surgeon can by its aid apply his dressing in a thorough and workmanlike manner immediately upon his arrival, avoiding the delay that sending for extra help would occasion.

The plaster bandage may be used under nearly all circumstances, but its value is perhaps better appreciated in mining accidents, where transportation must greatly aggravate the injury. Here, by placing the patient upon a litter and applying the splint first, there is no possibility of doing further harm in hoisting to the surface.

In regard to the convenience of the method, there is certainly less trouble in carrying the materials than that of any other. A small, air-tight tin canister, capable of holding a small quantity of dry plaster and a few bandages, can hardly be considered cumbersome. Enough for one or two dressings can always be kept in readiness, so that when the call is urgent no time is lost in hunting up old splints and

bandages, with the hope that they may be able to do service until something better can be substituted.

I have but little faith in temporary dressings—in fact, do not believe in them at all. If the immediate reduction of a fracture is good surgery, then permanent retention is better. An additional half-hour spent in getting things just right may save the surgeon many sleepless nights and exempt him from costly litigation later on. The only exceptions to be made are in those severer injuries where no attempt can be made to set the broken bones at the time of the injury. Occasionally we have to deal with a troublesome oblique fracture, in which perfect retention is next to impossible.

I have lately been conducting a series of experiments upon animals to determine the advisability of nailing the fragments together. I have succeeded in demonstrating that a clean steel nail is innocuous, and does not interfere with prompt union. Successful cases by this method have been reported. I shall certainly have no hesitancy in securing coaptation in that way should occasion offer.

Position in the reduction of fractures ought not to be overlooked. Here an intimate knowledge of anatomy is desirable. Take, for instance, a fracture through the middle or upper third of the forearm. To place the hand in a supine position during the setting of the fracture, and then to immediately twist it over to the semiprone and retain it there, appears to be a wanton transgression of mechanical principles, and often results in loss of function. Surgeons have from time to time noted the inconsistency, but hitherto have failed to profit by their own suggestions. There is no difficulty in retaining the arm in the supine position during the treatment if the plaster bandage is applied and carried well above the elbow, and finally the arm swung well back against the side and resting in a sling. After a week or ten days, that portion extending above elbow may, with advantage, be removed.

Here is an illustration of a case of comminuted fracture of the humerus that came under my care last summer—one fracture at the surgical neck, the other above the condyles. The first application of the bandage did not include the elbow. The arm was bound to the side while the plaster was pliable. This, with weight of arm, reduced the displacement completely; at the end of a week this splint was removed, and a new one applied from the wrist upward to the shoulder, holding it in rectangular position. The cure was rapid and satisfactory, and, aside from the application of the dressings, required no further care.

With increasing experience in the management of fractures, I can confidently assert that with the plaster-of-Paris bandage as a primary dressing, to be followed in the convalescent stage by the silicate of sodium, we can achieve the best results. I know also that the ever-varying conditions call for the exercise of great judgment as well as a practical knowledge of the art we practice.

Thorough honest work is the need of the hour. Into our hands come the unfortunate victims of a thousand accidents, stricken and mangled even unto death. Let us see to it that neither negligence nor incompetence on our part shall send them forth crippled and deformed when it is

within the power of human skill to prevent it. More time devoted to study and experiment, less to criticising and slandering our brother physicians, will ennoble the profession and make each member more worthy to practice the "divine art of healing," and more worthy to receive the reward "Well done!" when his labors are ended.

729 FIFTH AVENUE.

## CULTURE MEDIA FOR BIOCHEMIC INVESTIGATIONS.

By E. A. DE SCHWEINITZ, PH. D.,  
BIOCHEMIC LABORATORY, BUREAU OF ANIMAL INDUSTRY,  
DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

WHILE endeavoring recently to isolate the soluble ferments of the hog-cholera germ,\* I have had occasion to make use of an artificial culture medium recommended by Fermi for the study of the ferment-producing germs in general (*Archiv für Hygiene*, 1890, vol. x, Part I, p. 1), containing to every 1,000 c. c. of distilled water 0.2 gramme magnesium sulphate, 1 gramme acid potassium phosphate, 10 grammes ammonium phosphate, and 45 grammes glycerin. In this solution the hog-cholera germ grows well and characteristically.

The idea was suggested by my assistant, Mr. Emery, that this liquid might be conveniently substituted for beef broth in the preparation of agar or solid nutrient media. We accordingly had some made, by adding to the above solution one per cent. of agar, heating and filtering in the usual way. In this manner a clear, almost colorless transparent medium was obtained, upon which the hog-cholera and swine-plague germs grow characteristically. It would probably be equally well adapted for many other germs.

As the convenience of substituting this solution of salts for beef broth was at once apparent, I have tried its adaptability for the cultivation of the bacillus of tuberculosis and bacillus of glanders, and have had in use in my laboratory for some time media prepared as follows:

For tuberculosis, the above-mentioned solution of salts containing seven per cent. of glycerin and one per cent. of peptone, and for solid media this latter liquid without peptone plus one per cent. agar. Upon these media the growth of the germ is both rapid and characteristic—more rapid than upon an agar prepared from beef broth.

For the cultivation of the glanders bacillus, the medium was prepared exactly in the same way as that for tuberculosis, except that only five per cent. glycerin was used instead of seven, the solution was allowed to remain slightly acid instead of being neutralized, and no peptone was added. The glanders bacillus multiplies both satisfactorily and rapidly.

The solution of salts used for these media when first prepared is alkaline in reaction; by simply boiling, however, it can be rendered either neutral or acid, as in boiling some ammonia will be given off.

This method of preparing culture media, especially for biochemic work, where the products of the growth of the

germ are the main points to be considered, has several advantages over the use of beef broth. It is always an easy matter to obtain the chemically pure salts, and, as the amount and character of the salts entering into the solution are known, it is less difficult to obtain and study the products which are actually the result of the growth of the germ. If the expense is to be considered, the medium prepared in this way is very much cheaper.

I think this particular medium, and media of this class, will prove especially valuable in the study of bacterial products.

I hope to be able to report shortly upon the value and composition of a mallein and tuberculin derived from these artificial liquids.

## A PLEA FOR CLEANLINESS IN THE TREATMENT OF NASO-PHARYNGEAL CATARRH.

By EDWARD J. BERMINGHAM, A. M., M. D.,  
SURGEON TO THE NEW YORK THROAT AND NOSE INFIRMARY.

WHAT would be thought of a surgeon who would treat a wound or ulcer by dusting it with a powder of aristol or iodoform two or three times weekly without having previously cleansed it of the products of putrefaction?

What would be thought of the gynecologist who would medicate the uterine cavity or cervix without having previously assured himself that the mucous membrane was free of tenacious muco-pus?

This question might be propounded to the specialist in each and every department of medicine, and would in every instance receive the same reply, which would be in effect that any such practice could only be pursued at the present day by a practitioner utterly ignorant of the first principles of antiseptics, and that it was inexcusable and stamped its advocate as totally unfit to pursue the practice of medicine.

In all departments of medicine the importance of antiseptics, which is but another name for cleanliness, is recognized. The administration of hot water before each meal, or the more thorough washing out of the stomach by the siphon; the systematic washing out of the urinary bladder in cystitis; or the more elaborate and perfected antiseptic dressing of wounds—are one and all methods of cleansing, or rather of cleansing and then keeping clean by the exclusion of germs.

If this is a well-recognized principle in surgery, should it not also be applied in the treatment of all diseased conditions of the nose and naso-pharynx? Is it not of the utmost importance that the mucous membrane lining these cavities should be thoroughly cleansed of all the muco-pus and inspissated mucus which is constantly accumulating in an existent pathological condition? Astringent, alterative, or stimulating applications made by an atomizer or insufflator without having previously cleansed the membrane of the secretions, are applied to the secretion and not to the diseased membrane. As a result we find no benefit even from a prolonged course of treatment, and hence the oft-expressed belief, even among professional men, that catarrh can not be cured. In this connection it is well to say that catarrh is not referred to as a disease, but as a common

\* Philadelphia Medical News, October 1, 1892.

symptom of many varied pathological conditions. When stenosis in any marked degree is found it is absolutely necessary that it be first remedied. In other words, the nasal passages must be restored to a condition that will permit their respiratory function to be freely performed. Having done this, we are confronted with a condition of the mucous membrane which calls for a more or less prolonged course of treatment. This treatment will vary, of course, according to the condition of the membrane and to the views of the surgeon. But, in order to insure a successful result, the cavities should be thoroughly cleansed once or twice daily with a non-irritating solution. The surgeon, before medicating the parts, should satisfy himself, by a careful examination of both the anterior and posterior nares, that his application will come in contact with the mucous membrane lining the cavities, and not with the secretion covering the membrane. This matter is of so great importance that it should be regarded as of more consequence than the topical applications made by the surgeon. My experience has shown that the proper and systematic use by the patient of an antiseptic cleansing fluid will do more to restore the membrane to its normal condition than the frequent application of medicated solutions and powders usually made by the specialist. Properly used, fifty per cent. of cases of simple hypertrophic catarrh without stenosis will be cured by this means alone, and atrophic cases will be much benefited. If cleansing be not resorted to at all, or if it be improperly done, the accessory treatment deludes both physician and patient, and fails in almost every instance.

What cleansing solution should be used? One that is alkaline, non-irritating, antiseptic, and deodorizing. The indications are met in the employment of either Dobell's solution, Seiler's tablets, listerine, or glyco-thymoline. To the last mentioned preference should be given, as it meets the indications more fully than any other agent now before the profession. Diluted with three times the quantity of water so as to make a twenty-five-per-cent. solution, it should be used by the patient from one to three times daily, as may be advised by the physician, the latter bearing in mind that it should be employed only sufficiently often to keep the cavities cleansed. At every visit the physician should satisfy himself that the patient is following his advice carefully and intelligently, and before making a topical application he should make a careful rhinoscopic examination to assure himself that the cavities are free from all secretion. If they are not, he should first wash away the secretion with a post-nasal spray of glyco-thymoline.

The method of applying the cleansing solution is of the greatest importance. The old Thudicum douche is to be unqualifiedly condemned, as is any form of douche or spray where a large quantity of liquid is introduced with any force into the nasal cavities. Sniffing the fluid into the nostrils from the palm of the hand is also fraught with danger. Every practitioner of experience in diseases of the ear has frequently seen cases where serious trouble was produced in the middle ear by drawing the fluid and muco-pus into the Eustachian tube. Syringes of all kinds—and, in fact, any apparatus where the force of the stream is under the control of the patient—should be avoided. Whital, Tatum,

& Co.'s nasal douche tube, although permitting the employment of but a small quantity of fluid, is yet a safe instrument. Dr. Dessar's douche cup meets the indications well, but preference should be given to a douche which has been made by Mr. Oscar Kress at the suggestion of the writer, and which is here figured.



It is to be used in the following manner: Having warmed the cleansing solution by placing an ounce phial containing it standing in a tumblerful of hot water for a few minutes, fill the douche, which has a capacity of about seven drachms, generally enough for a thorough cleansing. The funnel should now be closed with the tip of the index finger and the nozzle inserted into the nostril so that it closes the latter completely. Throw the head slightly backward, raise the finger closing the funnel, and allow the solution to enter the nostril and flow through it to the throat. When the solution is felt in the throat the flow may be checked by simply closing the funnel with the finger tip. The solution should be kept in contact with the parts for two minutes before clearing nose and throat, and it should be used in each nostril.

The method of cleansing herein advocated is rigorously pursued, not only in my private practice, but also in the several clinics at the New York Throat and Nose Infirmary, and with the most satisfactory results. In fact, this is regarded as the most essential part of the treatment, and it is carried out as of the first importance.

7 WEST FORTY-FIFTH STREET.

## ON OPERATIONS FOR DIVERGENT STRABISMUS,

ILLUSTRATED BY TWENTY-FIVE CASES.\*

By OREN D. POMEROY, M.D.

CASE I.—Dr. Z., aged thirty-two, had a decided converging strabismus, the right being the fixing eye.

The vision was  $\frac{20}{40}$  in the right and  $\frac{20}{60}$  in the left. There was slight hypermetropia. Some years since, the left internus was divided by an ophthalmic surgeon and resulted in an absolute loss of power in the muscle, and the eye deviated four lines to the left. I advanced the internus of the left by the old method, although very little tendon could be found, together with the conjunctiva. The externus was freely divided with extensive conjunctival dissection. The right externus was also divided, and the position of the left was at about two lines of convergence. The operation was done under cocaine.

There was very little reaction, and the *status præsens* is one

\* Read before the Medical Society of the State of New York at its eighty-seventh annual meeting.



of nearly central position of the left eye, but without mobility, except in a vertical direction. The divergence is perhaps one line.

It will be seen that the operation on the left externus produced a complete loss of power, which seemed the only way of restoring the normal position of the eye.

CASE II.—Miss R., aged twenty-four, has a divergent strabismus of about two lines. She fixes with either eye, but more frequently with the right. The vision is  $\frac{20}{20}$  in each eye; no improvement with glasses and she seems to be emmetropic. There is no binocular vision. The left internus was advanced by the modified Prince operation, and the right externus was freely divided. Fifteen days afterward there was binocular single vision, although there was exophoria of  $8^{\circ}$  to  $10^{\circ}$  at distance. The left converges the better of the two.

Points of interest: Restoration of binocular single vision, when binocular vision was absent before the operation, and a state of emmetropia. With the vision so nearly perfect in each eye, the restoration of binocular single vision was to be hoped for.

CASE III.—Alice T., aged twenty-five, has divergent strabismus, with vision on the left  $\frac{20}{20}$  and right  $\frac{20}{20}$ ; emmetropic; fixes with the left, and the right diverges three lines. The right internus was advanced and some convergence resulted for a few weeks. Four months subsequently there was a line and a half of divergence and the externus of the right was divided, which resulted in correct position. No binocular vision. This case shows that it would have been better to follow the rule and divide the externus of the deviating eye.

CASE IV.—David E. E., aged twenty-one, has a divergent strabismus of about two lines and a half. The right eye accepts a  $+40$  D. axis  $90^{\circ}$  and has  $\frac{20}{20}$  vision. The left eye is not improved by correction, and has less than  $\frac{20}{20}$  vision. No binocular vision. He has had headaches, nausea, and vertigo, and some conjunctivitis. The wearing of the cylindrical correction over the right eye seems to relieve his symptoms; naturally he fixes with the right eye. There is no apparent weakness of the internus of the fixing eye. He has been wearing a spherico-cylindrical glass for reading, but found it fatiguing. Three months after these observations the externus of the left was divided at its insertion with free conjunctival dissection, without quite correcting the strabismus; a suture was applied deeply in the conjunctiva near the inner margin of the cornea and attached to the inner canthus, tightened sufficiently to cause two or more lines of convergence. This remained in for two days, when it cut itself out from the conjunctival side. After the tenotomy there was homonymous diplopia for a few days, with a convergence of from  $2^{\circ}$  to  $3^{\circ}$ . In spite of this, the eye seems to turn outward slightly. After about ten days the eye was apparently in correct position. When looking sharply to the left he still sees double. There was no restoration of binocular single vision. I did not attach the suture to the fellow eye across the nose, because it seemed to me that only the internus of the left was weakened. He thinks the strabismus commenced some years since after an inflammation of the eye following vaccination, but no lesion was visible by ophthalmoscopic inspection.

CASE V.—Mary R., aged twenty-one, has a divergence of three lines. The right usually fixes; vision—right eye,  $\frac{20}{20}$ , no correction; left,  $\frac{20}{20}$  with  $-6.50$  D. With this eye there seems to be astigmatism by Javal's test. The patient was etherized and both externi freely divided. A suture attached in the conjunctiva near the inner margin of each cornea and tied across the nose caused a convergence of nearly three lines. Two days afterward there was some œdema of the lids. After six days the eyes were in correct position, except that the left eye in-

clined to turn out and the right eye slightly to converge. Would it have been better to have placed the stitch only in the left, fastening it to the inner canthus, or to have placed a stitch in each eye, but tightening the left more than the right?

CASE VI.—Kate S., aged nineteen, has divergence of the right eye of two lines and a half, dating back to an injury five years since, when a cataract was produced. Subsequent needling removed the lens, and the vision became  $\frac{20}{20}$ . The field is concentrically limited to an area of  $10^{\circ}$ . The left eye has vision  $\frac{20}{20}+$ , and a hypermetropia of about  $+1$  D. No binocular vision. Both externi were freely divided and the eyes made to converge two lines and a half by means of a suture tied across the nose. In one week the eyes were in correct position, although the right internus seemed somewhat insufficient. Would it have been better to have guyed each eye separately to the inner canthus, applying more convergence to the more squinting eye?

CASE VII.—Solomon P., aged seventeen, has divergent strabismus. The right eye fixes and the left deviates about three lines.

Both externi were freely divided, and the right was made to converge about two lines by means of a suture attached to the inner canthus.

After five days the eyes were in correct position. Subject myopic. I am uncertain as to the indications for attaching the correcting suture to both eyes and tying them across the nose. I think I was impressed with the idea that the right internus was much the weaker of the two; no binocular vision.

CASE VIII.—Mary M., aged twenty, has a divergence of the right eye of from three to four lines. She counts fingers with this eye at two feet, and with the left has  $\frac{20}{20}$  vision. No correction in either eye. The right externus was divided and the internus was advanced by the modified Prince method, leaving the eye convergent about two lines. There was some swelling of the lid, and iced cloths were used for two days. The eye was slightly convergent for ten days, when the position became correct.

CASE IX.—William T., aged forty-nine, has had divergence of the left eye for thirty-one years, dependent, apparently, on a vascular tumor in the superior maxillary region, which also caused an entropion of the lower lid. The divergence was from three to four lines. After various methods of treatment, including ligation of the internal carotid artery, the tumor disappeared. The vision of the left eye was  $\frac{20}{20}$  with an atrophic-looking nerve, but a perfect field. The eye protrudes somewhat. The vision of the right is  $\frac{20}{20}$ . Both are emmetropic. The left externus was divided and the right was advanced by the modified Prince method, leaving it convergent about two lines. The eye was convergent for six days. On the seventh day the stitch was removed and the eye became straight. A subsequent operation was successfully done for the entropion.

CASE X.—Ella O. B., aged twenty-seven, has myopia and a divergence of the right eye of four lines. Under cocaine anesthesia the right internus was advanced by the modified Prince method, and the eye was left convergent about two lines.

This convergence partly remained after a week. No further record.

CASE XI.—Lizzie E., aged seventeen, has a divergence of the right eye of three lines for the past seven years. The vision of the right eye is  $\frac{20}{20}$  with  $-14$  D., and the left  $\frac{20}{20}$  with  $-8$  D. The right internus was advanced without further operations. In a few days the correcting glasses were worn and the position of the eyes was satisfactory, although if the glasses were removed there was divergence. It might have been better to have divided the right externus. I think this is

the only case where *esopic* correction has sensibly influenced the position of the eyes.

CASE XII.—Mr. H. O., aged twenty-five, has divergence of the right eye of three lines and a half. Refraction of the right is  $-8$  D., and the left is emmetropic or has slight hypermetropic astigmatism. The vision of the right is  $\frac{20}{80}$ , and the left  $\frac{20}{20}$ .—No binocular vision before or after the operation.

Both externi were divided, and the right internus was advanced by the modified Prince method. At first there was an over-effect, but after a week this disappeared.

CASE XIII.—Mr. H. O., aged twenty-five, has a divergence of the right eye of three lines and a half; both eyes myopic.

The externi were divided, and the right internus was advanced by the modified Prince method, leaving the eye somewhat convergent.

In one week the position was correct, although there was some apparent insufficiency of the right internus.

CASE XIV.—Mary M., aged twenty, has a divergence of the right eye of three lines. The right counts fingers at one foot, and the left has a vision of  $\frac{20}{30}$ . A modified Prince advancement of the right internus was done, and the externus was divided, leaving the eye somewhat convergent. In a week the position was correct.

CASE XV.—George F., aged fifteen, had divergence of the left eye. The internus was advanced by the modified Prince operation, and the externus was divided.

Parallelism was the result for a few days, but after three weeks there was decided divergence. Evidently the right externus should have been divided.

No further note.

CASE XVI.—Lizzie N., aged fifteen, has divergence of the right eye. The vision of the right was  $\frac{20}{20}$  with  $+2$  D.  $\odot +75$  C., axis  $75^\circ$ ; and the left was  $\frac{20}{20}$  with  $+75$  D., axis  $90^\circ$ . The right internus was advanced by the modified Prince operation, and the externus was divided.

A sufficient effect only was at first obtained, but it remained permanent. It was done under ether, and the effect could not as well be estimated as though cocaine had been used.

CASE XVII.—James R., aged twenty-eight, has a divergence of the right eye of not less than four lines, the result of a tenotomy of the internus. The externus was divided, and the internus was advanced after the old method, as it was feared that, on account of some atrophy of the conjunctiva, there would have been an insufficient amount to properly sustain the pulley suture. The operation was done under ether. The eye converged about two lines for three or four days, when it became parallel. Directly after the operation the cornea was nearly covered by the ocular conjunctiva, the result of the dragging of the sutures. The patient made a good recovery, but with the somewhat prolonged lumpy elevation at the site of the advancement. There is almost normal motility of the eyeball, with some insufficiency of the internus. Contrast this case with Case I, which presented identical conditions apparently, but where there was an absence of horizontal motility of the eyeball.

CASE XVIII.—William A. W. has divergent squint of three lines. Right eye emmetropic; left, myopic  $-1.25$  D. Advanced the left internus by the modified Prince operation, and divided the externus. As a result there was three lines of convergence, which ultimately disappeared.

CASE XIX.—William T., aged forty-nine, has divergent squint in left eye of three lines. Vision,  $\frac{20}{20}$ , and in the right  $\frac{20}{20}$ ; both emmetropic. Left fundus looks atrophic, but the field is perfect.

The left externus was divided, and the internus was advanced by the modified Prince operation. The eye was left slightly convergent.

No further note.

CASE XX.—George F., aged fifteen, has divergence of left eye, I conclude, of no great degree, as it was corrected by division of the left externus, the eye at first being slightly convergent. No suture.

CASE XXI.—Alice F., aged twenty-five, has two lines of divergence of the right eye. Both eyes emmetropic. Vision of the right eye is  $\frac{20}{20}$ , and of the left  $\frac{20}{20}$ .

The tendon of the right externus was divided, and on the next day there was parallelism. No suture used. This seems somewhat unusual.

CASE XXII.—One case, the notes of which I have lost, having a three-line strabismus, was operated on by the old method, and the convergence of two lines after the operation continued for a year afterward. Since that time it has grown so much less as not to be a disfigurement. This is the only case of permanent convergence I have seen as a result of operation. Some of the cases herein reported have been noticed after a year or two to show slight divergence, following the well-known tendency to revert to the original condition.

CASE XXIII.—Another case, in which advancement was done by the old method, resulted in considerable reaction and the cornea became involved. For a time the symptoms were serious; the eye, however, recovered with a small peripheral opacity of the cornea, but without harm to the vision. At the time, another case at the hospital behaved in a similar manner, and the late Dr. Agnew suggested that there might be some septic influence at work in the hospital.

*Mode of Operating.*—The earlier cases were operated on by the old method—that is, the muscle, including the overlying conjunctiva, was advanced and attached to the eyeball by two sutures, passed into the conjunctiva, reaching respectively to the center of the cornea above and below. The end of the tendon was cut off so as not to encroach on the cornea. The objections to this operation were the somewhat excessive traumatism inflicted on the eye, the danger of producing a twist to the eyeball by unequal tightening of the sutures, and a lumpy elevation on the eyeball, the result of the advanced conjunctiva and muscle.

Latterly I have used what has been here denominated the modified Prince operation. The pulley used by Prince and his method of applying the sutures have been retained and nothing more. For some years I have discarded any special method for catching the tendon, finding it amply sufficient to go in with fixation forceps and grasp the tendon. If two forceps are used, the tendon may be more accurately caught. At an earlier date, fearing that the tendon might not easily be found, I was in the habit of attaching the fixation forceps to it before division; but this is not necessary. In one case the pulley was torn out of the conjunctiva and the old operation was substituted, but I suspect the fault was in not passing the suture so as to include a sufficient amount of conjunctiva. If the suture somewhat encroaches on the sclera it does no harm. In my later operations I am inclined to the practice of not advancing the muscle at all, but dividing one or both of the externi and using a suture to draw the eye inward.

In one of the cases here reported, where the suture was attached to both eyes and tied across the nose, the effect was greater on the less squinting eye, which seemed to me an objection to the operation.

It would perhaps have been better to attach each eye separately to the inner canthus, and converge the non-fixing eye more than its fellow. I lay great stress on producing considerable convergence by the sutures; in some cases as much as three lines or more, for the most thorough division of the externi alone may have little influence on the position of the eyes.

I never have removed a piece of the tendon in this operation, or divided it any distance from its insertion, not having found it necessary. The operations have latterly been done with antiseptic precautions, although before the day of antiseptics little reaction usually resulted. In a few instances iced cloths and atropine have been necessary.

*Recapitulation and Remarks.*—Only two cases were operated on where the squint depended on faulty operation for convergence. In Case I both externi were divided and one internus was advanced by the old method, the result being nearly correct position, but with absolute lateral immobility. In Case XVII advancement was done with division of the externus of the same eye, and the position of the eye was perfect and the mobility was nearly normal.

It is not easy to explain the absence of motility in one case and nearly perfect motility in the other. In Case II there was divergence of two lines, emmetropia, vision  $\frac{3}{8}$  in each; fixes with either eye, and no binocular vision. One internus was advanced and the externus of the fellow-eye divided, with the result of binocular single vision and exophoria of  $8^{\circ}$  to  $10^{\circ}$ .

In Case VIII there was sufficient reaction to require iced cloths to the eye; eye convergent for ten days.

Case X had divergence of four lines and was corrected by advancement only.

In Case XI one internus was advanced with correction of the squint, but in a few days there was relapse and the eyes were kept in position by correcting the myopia of  $-14$  D. in one and  $-8$  D. in the other.

In Case XII Prince's advancement and both externi divided; one eye emmetropic and the other myopic.

In Case XIII Prince's advancement; division of both externi; both myopic; eyes straight, but some insufficiency of internus of deviating eye.

In Case XIV, emmetropia, squinting eye amblyopic; Prince's advancement, and division of the opponent; at first over-effect, then correct position.

In Case XV the internus was advanced by the Prince method and its opponent was divided; after a few days some divergence; the only case of decidedly insufficient effect in this list.

In Case XVI, hypermetropic astigmatism in one and compound hypermetropic astigmatism in the other; had the internus advanced, its opponent divided, and a correct position obtained, although there was no over-effect at first.

In Case XIX, both emmetropic; Prince's advancement; tenotomy of externus; convergence at first, subsequently slight convergence.

Case XX, slight divergence; emmetropic; corrected by division of externus; no suture.

Case XXI same as Case XX, except one eye was amblyopic.

At the present time I am inclined to the belief that nearly all the cases of divergence may be corrected without advancement. Especial stress should be laid on drawing the eye sharply inward when the squint is excessive, in some cases as much as three or four lines.

In divergence from tenotomy of the internus, advancement will, of course, generally be necessary.

Two additional cases are here appended—one where the squint depended on a previous tenotomy and which was corrected without advancement.

CASE XXIV.—Rose R., aged twenty-two, has a divergence of the left eye of three lines, dependent on an operation for convergent squint some years since; left eye very amblyopic; right, perfect vision with moderate hypermetropia. Division of left externus, with the use of an adducting suture, which caused nearly three lines of convergence, although after the division of the externus the eye apparently became straight. This suture cut its way out in from two to four days and the eyes are in correct position. It will be seen that this is the only case of divergence dependent on a previous tenotomy of the internus where advancement was not done, yet the operation was entirely adequate.

CASE XXV.—Thomas B., aged forty-nine. Divergence two lines and a half; fixes with left. Vision—right,  $\frac{3}{8}$  with  $-6$  D.; left,  $\frac{3}{8}$ , emmetropic. Division of externus of the right and an adducting suture attached to the inner canthus, which produced two lines of convergence. In two days the suture cut its way out of the conjunctiva and it was removed. The eyes became parallel.

## REPORT OF FOUR CASES TREATED BY HYPNOTISM.

By J. ARTHUR BOOTH, M.D.,  
ASSISTANT PHYSICIAN, NERVOUS DEPARTMENT,  
MANHATTAN, EYE AND EAR HOSPITAL.

THERE is no longer any doubt that the treatment of certain nervous disorders by hypnotism now holds an important place, and the majority of those who have fairly tried hypnotic suggestion are convinced of its usefulness. With the view of adding to the evidence already published in this favor, the histories of the following cases are reported:

CASE I. *Hysteria; Epileptoid Attacks; Hysterogenic Zones; Hemianesthesia; Cure in Twelve Séances.*—June 6, 1888.—Mary B., nineteen years old, single. From infancy up to her eleventh year she was perfectly healthy; at this time she had scarlet fever and was quite ill. Three years ago a chair was pulled from under her, and, according to her own statement, substantiated by that of her mother, she was unconscious for an hour after the accident.

For the last two years she has been having convulsive seizures, which are ushered in by a sudden darting pain in the back of the head; unconsciousness follows, and then tonic and clonic movements of the upper and lower extremities take place. No biting of the tongue or frothing at the mouth. These attacks only occurred at long intervals at first, but within the last two weeks they have come on every day, varying from five to twelve in number.

*Examination.*—There is a complete loss of sensation to touch and pain on the left side. While testing reflexes at the knee, the tapping on the tendon caused a typical hysterical paroxysm. Between the shoulder blades at the height of the fifth and sixth



dorsal vertebrae the patient presents a surface as big as a silver dollar which is insensible to touch and to the prick of a pin. Pressure on this surface immediately brings on an attack. For five months internal medication, counter-irritation, and electricity did not cause any change in the condition of the left side, or influence the character and frequency of the spasms. On November 14th hypnotism was tried for the first time, and without any difficulty she passed into a deep sleep—so profound, indeed, that it was hard to arouse her. Suggestions proper to the conditions present were offered—viz., the rest would do her good; she would have no more attacks; pain would disappear, etc.

She was hypnotized three times a week, and on December 5th the pain and numbness had disappeared and there had been no attack for ten days. Treatment by suggestion was continued regularly for two weeks longer with no return of the attacks.

*June 5, 1889.*—The mother calls and reports that her daughter has remained free from any convulsive seizures.

*CASE II. Hysteria; Epileptoid Attacks; Insomnia; Cure in Fifteen Séances.*—Mary A., eighteen years of age, was seen for the first time on the 12th of June, 1889, and the following history obtained: She had always been nervous, but otherwise had had no trouble until the appearance of the menses, two years ago; then during the first year she suffered much pain every month. For the past year menstruation has appeared at irregular intervals, but without pain. During the last six months she has become very depressed, cries easily, and is now having every day frequent convulsive seizures, numbering from three to five a day. The patient complains of a lump frequently rising in her throat (globus), and this is always a marked symptom just preceding an attack. She now begins to cry, and, sliding from the chair on which she is sitting to the floor, a typical hysterical convulsion follows.

During the past month she has been greatly troubled by sleeplessness, and now obtains but a few hours' sleep each night. She is hypnotized easily, and, falling into a deep stupor, it is only possible to awaken her by repeated suggestion.

*June 14th.*—Has rested better; insomnia less marked; no change in the attacks. Again hypnotized and the proper suggestions made.

*July 2d.*—The above-described treatment has been continued three times a week. The patient is now sleeping well and is having only one seizure a week.

*August 4th.*—No attack in two weeks. Treatment stopped; to report in a month.

*September 14th.*—Has been entirely free from any return of the former trouble.

*CASE III. Chorea Movements and Anesthesia of the Left Arm; Cure in Seven Séances.*—Rosa W., seventeen years of age; works as a waitress in a restaurant. She consulted me at the Manhattan Eye and Ear Hospital on December 20, 1889, when the following history was obtained:

General health good until last June; then had scarlet fever followed by diphtheria. The present trouble commenced three weeks ago. At first there was only a slight tremor of the fingers of the left hand; this rapidly grew worse and now involves the whole arm, compelling her to give up her position on account of this constant shaking of the entire arm. Sometimes the movements cease for an hour, but then return. She sleeps well at night, during which time the arm is quiet. The patient has never had any convulsive seizures or crying spells. Menstruation has not yet appeared. There is a coarse rhythmical tremor of the left upper extremity. It is continuous and not jerky. There is also marked loss of sensation of the entire hand and the anterior surface of the forearm, shading off gradually to the middle of the arm.

I hypnotize her without trouble and the movements cease in consequence of suggestion. Upon awakening they reappear.

*December 21st.*—Reports a slight improvement; the arm shakes less, and was quiet for two hours this morning. Again hypnotized and suitable suggestions made. Upon waking, the arm is without tremor and sensation has returned to the surface of the arm which was anæsthetic.

*28th.*—Has been hypnotized every day since the last note. There have been no movements of any kind for two days, and careful observation and testing fail to reveal the slightest trace of tremor or shaking.

*February 2, 1890.*—Still remains well; no return of the trouble. She is now at work again.

The cases above recorded are quite common forms of hysteria with which most of us are familiar.

The following case, however, is unique, presenting a type of trouble rarely met with and one of much interest. The patient was referred to me about three weeks ago by Dr. David Webster for entire loss of vision of the left eye. The history is as follows:

*CASE IV.*—Fannie T., thirty-eight years old, married. November 23, 1892. Perfectly well until a week ago; then noticed a slight dimness of vision in left eye. About the same time she was troubled by pain in the eye. Three days ago she found that she could not see at all with this eye. No vomiting, diplopia, or vertigo. Never had rheumatism, malaria, or any serious illness, having always enjoyed good health up to the time of the present trouble. Lately she has been somewhat depressed and has cried several times without cause. Has three healthy children; no miscarriages. Careful inquiry does not reveal any history of syphilitic infection. Bowels and menses regular.

*Examination.*—There is complete loss of vision in the left eye; she fails to recognize any article when held before it, the right eye being closed. Vision of right eye normal. Pupils active and normal in size; no ocular paresis; fundus normal. Knee-jerks exaggerated. Equilibrium good. There being no signs of any changes in the optic nerve or symptoms of organic change anywhere, the loss of vision is probably due to hysteria. The patient was easily hypnotized, and, the necessary suggestions having been made, she was awakened after sleeping five minutes. The right eye was then covered and the other one again tested. Vision was about the same, but she volunteered the statement that there was less blur, and the pain had disappeared.

*November 25th.*—No change; condition about the same. Vision again tested as before, and with the same results. Has now a good deal of pain in the eye and face. I hypnotize her and suggest that she will have no more pain, that the rest will do her good, and that she will now see. In fifteen minutes she got up and, placing one hand over the right eye, recognized a clock on the wall about twelve feet distant, although she could not distinguish the hands or tell the time. A bunch of keys was named correctly at four feet. The pain is entirely gone.

*December 7th.*—Has been able to see much better; absence of pain since last séance. Sees well at ten feet, but beyond this everything looks blurred. Hypnotized.

*9th.*—Has been perfectly well; no pain. Vision entirely restored.

*February 3d.*—Patient has remained well. Has had no trouble with her vision since her last visit to the hospital.

**The French Academy of Medicine.**—The *Lancet's* Paris correspondent states that Sir William MacCormac, of London, and Dr. Tilanus, of Amsterdam, have been elected foreign corresponding members.

## MAGGOTS IN THE NOSE

SUCCESSFULLY TREATED BY INJECTIONS OF CHLOROFORM.\*

BY MAJOR JAMES P. KIMBALL, SURGEON, U. S. A.,  
FORT CLARK, TEXAS.

The following case is reported as a contribution to the knowledge of a comparatively rare and little-known disease, but one which has repeatedly proved fatal in this part of the country:

On the morning of September 18, 1892, Private J. J. G., Company C, Eighteenth Infantry, appeared at sick call complaining of pain in the forehead and the orbits, anorexia, and fever. These symptoms had been coming on during the preceding twenty-four hours. His temperature taken under the tongue was 102.4°. Remittent fever was prevalent at the time and it was believed that he was coming down with this disease. He was admitted to the hospital and given the usual treatment for fever patients. On the following morning he was much worse. During the night he had been delirious at times, sleepless, constantly tossing about and trying to get out of bed. He complained of intense throbbing pain at the root of the nose and over the frontal region. The nose and lower eyelids were red and swollen. There was a discharge of bloody serum from the left nostril with an offensive odor. The nostrils were washed out with Dobell's solution, after which, in the act of sneezing, several maggots were ejected from the left nostril. Chloroform by inhalation was then given, and all the larvæ that could be seen—some fifteen or twenty in number—were removed with long, slender forceps, after which a drachm of carbolized oil was injected into the nostril. The patient expressed great relief; but during the ensuing night his sufferings returned with even increased intensity. From time to time maggots were ejected in the act of sneezing or blowing the nose. On the morning of the 20th the whole face was swollen, as was also the soft palate. Temperature, 104°. Well up in the left nostril was visible a writhing mass of maggots, undiminished in number from the colony present there the day before. All the larvæ that could be seen were again removed with forceps and the nostrils thoroughly washed out with a ten-per cent. solution of carbolic acid, and morphine given for the relief of pain. This procedure was repeated in the evening, at which time the temperature of the patient was 105°.

On September 21st the condition of the patient was worse than ever. Both eyes were closed by the swelling. The unremitting pain and sleeplessness were most distressing; constant watch was necessary to keep him from throwing himself out of bed. Maggots escaped not only from the nose but from the mouth in the act of coughing. The fetor of the breath was extremely offensive. The velum palati was swollen to such an extent as to prevent deglutition. It was apparent that the treatment hitherto employed was useless, and an injection into the nostril of equal parts of chloroform and water was given, after which the nostrils were washed out and about a score of maggots removed. Food and drink were given through a stomach tube. Some five or six hours after the injection of chloroform and water there was little or no amelioration in the man's condition, and an injection was given of two drachms of pure chloroform. The pain produced by the injection was allayed by injecting carbolized oil, and the nostrils were washed out by means of a post-pharyngeal syringe with a ten-volume solution of peroxide of hydrogen. The effect was immediate and encouraging. Not less than a hundred dead

larvæ were expelled, partly by syringing and partly by sneezing and forcibly blowing the nose, and by coughing out those which came down through the posterior nares into the pharynx.

On the following day, September 22d, there was some improvement in the patient's condition, but the trouble was not yet overcome. Live maggots were expelled in the act of sneezing, and others could be seen well back in the nostril. The pure chloroform injection was repeated, resulting in the expulsion of some fifty more dead maggots.

September 23d.—Live maggots were again to be seen on looking into the left nostril, and the injection of chloroform was repeated for the third and last time. A score or more of dead maggots were got rid of on this occasion, and for several succeeding days dead ones came away singly or in knots of from two to six when the nasal passages were syringed. In all, not less than three hundred maggots were ejected.

Recovery was slow. It was September 28th before the patient was able to swallow and the use of the stomach-tube could be discontinued. Portions of the mucous membrane of the nasal fossæ and naso-pharynx in a gangrenous condition were detached and washed out from time to time up to October 3d, and it was not until October 7th that the temperature became normal and the patient fairly convalescent.

Solution of peroxide of hydrogen, first used as an antiseptic for syringing the nares, was found grateful to the patient, corrective of the fetor, and exercising a stimulant, alterative effect on the diseased mucous membrane, and its use was continued at intervals of from five to six hours for several days subsequent to the last injection of chloroform.

The patient is now under treatment for dry catarrh of the naso-pharynx with ozæna. He says he has had catarrh since last winter, and for several months past the discharge has been offensive. The history he gives of his recent illness is that on the afternoon of September 16th, about thirty-six hours before he applied for medical aid, while asleep on a bench in the barrack, he was awakened by a tickling sensation in the nose, which he thought had been produced by a comrade with a straw. This in all probability was the time when the larvæ were deposited by a fly in his nostril.

This fly is the *Sarcophaga georgina* (Wiedemann), an ovo-viviparous insect, the larvæ being hatched within the oviduct. It is twelve millimetres in length, with rather a small head and plumose antennal bristles. The face is silvery white with a black spot between the copper-colored eyes; the thorax light gray with seven longitudinal black stripes; the satiny silver-gray abdomen checkered with black lines; black feet and gray translucent wings. The larva is eighteen millimetres long, accephalous, white, cylindrical, tapering to a point at the mouth, and surrounded with a spiral ridge like a screw—whence its popular name of "screw worm." The posterior three fourths of the body, up to the point at which it begins to taper, is three millimetres in diameter. The mouth is formed by a sort of lip on which are two small protuberances, from the center of the base of which protrude two black, very sharp, corneous mandibles or hooklets, united at their origin in the lip but separating outside. On the upper side of the body, back of the mouth and underneath the transparent skin, is a brown patch. To ascertain the time occupied in their development, the larvæ were expressed from a fly upon a piece of tainted meat, and inclosed in a wide-mouthed bottle and placed in the sun. In twelve hours it was estimated that the mass had increased in bulk forty fold; at the end

of twenty-four hours the maggots were half-grown, and in forty-eight hours they were fully developed. The *Sarcophaga* or flesh fly is found very commonly here around the butcher shops from about the first of March to the last of October. The habit of this fly is to deposit its larvæ on putrid flesh.

I have obtained reliable information of seven cases of maggots in the nose (in addition to the one above reported) occurring at Fort Clark and its vicinity during the last ten years, all of which, except one, proved fatal. Ozena existed in all in which I have been able to ascertain the condition of the patient at the time of contracting the disease. Attracted by the strong odor, the fly enters the nostril when the victim is asleep to drop its living larvae.

The history of these cases I will give briefly, not attempting to arrange them in chronological order, but giving first that of which I have most complete details.

CASE I.—Private O. D. R., Company C, Eighteenth Infantry, stationed at Fort Clark, Texas, was taken sick July 2, 1890, with pain in the head and face, which continued to grow worse during this and the following day. On July 4th bleeding from the nose commenced, and maggots were discovered in the right nostril. Treatment by removal of the larvæ with forceps and syringing with solutions of carbolic and creosylic acids and spraying with carbolized vaseline was vigorously but unavailingly employed, and the man died on July 9th. At the autopsy a great number of maggots were found in the posterior nares and nasopharynx, some being free in these cavities and moving actively about, and others imbedded in the tissues. The bony wall of the nasal cavities was denuded of mucous membrane in some places, in other places the membrane was swollen, and in still others broken down and gangrenous. This man at the time of contracting his last illness was suffering from an exceedingly offensive ozena, which, in the words of the record of his case, made him "a nuisance in the company."

CASE II.—Private J. B., Troop D, Eighth Cavalry, admitted to hospital at Fort Clark, Texas, April 27, 1884, with neuralgia of left side of face and epistaxis. Committed suicide at 8.45 p. m. of the same day. "Screw worms" were found in the left nostril and left antrum.

It is perhaps worthy of remark that there is a tradition in the garrison that any one becoming the subject of this disease would better kill himself at once.

CASE III.—Mr. R. P. P., a civilian, who was suffering from catarrh and had come to Texas for his health, became the subject of maggots in the nose while living on a ranch some miles from Fort Clark. He was brought to the post and admitted to hospital May 27, 1884, and discharged June 14th. I have been unable to find any details of treatment.

Of the four other cases I have been able to gather but meager details. All proved fatal. One was a soldier of the Fourth Cavalry, who contracted the disease while on a scout, and died at Sabinal Station, Texas.

Another was a Mexican, who died in 1882. The remaining two were: one a shoemaker, who died in 1882, and the other a barber, who died in 1884; these last three were citizens of the village of Brackettville, Texas.

The barber, I am told, had lost most of his customers, driven away by his offensive breath, from which I infer that he was a sufferer from ozena.

Two cases of maggots in the nose are reported in the

*Medical Record*, vol. xxviii, p. 399, by Dr. C. M. Harrison, of Del Rio, Texas, a town thirty miles distant from Fort Clark. The first was that of a Mexican with nasal catarrh. The treatment consisted in injections of carbolic-acid solution, corrosive-sublimate solution, turpentine, tannin, and morphine—"first one solution and then another, through the anterior and the posterior nares." "The patient died in agony at the end of three days." The second case was that of a Mexican woman who was cured by injecting into the anterior nares half an ounce of pure chloroform mixed with an equal quantity of an antiseptic solution after various other measures, including the inhalation of chloroform, had been tried in vain.

It appears to be satisfactorily established that this fly deposits its larvæ only on the unsound mucous membrane. The following case shows that when the conditions are favorable it may do this in other situations than the nasal fossæ: A soldier who was suffering from remittent fever and was in hospital under my charge at the same time as Private G., was also the subject of constitutional syphilis, which was manifested at this time by ulceration of the gums with a very offensive odor. For several days he was in a semi-conscious state of low delirium, and while in this condition a fly deposited its larvæ in an ulcer above the upper incisors. The nurse discovered them probably within a very short time, as they were still very small, although large enough to be moving actively about. They were removed—between forty and fifty in number—by a brush and forceps. Two were found beneath the gum fully half an inch from its margin.

The injection of chloroform in the treatment of maggots in the nose is recommended by Sir Morell Mackenzie in his *Manual of Diseases of the Throat and Nose*, 1884. It was first used, he states, by Morel, a French army surgeon, during the military occupation of Mexico by the French—1862-'67—the remedy having been originally recommended by Assistant Apothecary Dauzats. He advised that chloroform diluted with one half its volume of water should be shaken up and injected before the two liquids have time to separate. Subsequent to Morel's paper was one by Jacob, also a surgeon in the French army in Mexico, who reports a severe case of maggots in the nose cured by chloroform injections and inhalations. He says "pure chloroform was injected several times."

The treatment recommended in the other standard medical works of my library which make any mention of this disease—viz., von Ziemssen's *Cyclopædia of the Practice of Medicine*, Ashhurst's *International Encyclopedia of Surgery*, and Agnew's *Surgery*—consists of inhalations of alcohol, ether, turpentine, and chloroform; syringing with carbolized solutions or solutions of corrosive sublimate, or decoctions of bitter herbs or tobacco; injections of turpentine or of oil; insufflations of calomel; and pencillings with balsam of Peru. Any or all of these measures in a fully developed case of the larvæ of the *Sarcophaga georgina* in the nasal passages, I believe, are of scarcely more avail than Mrs. Partington with her broom against the waves of the Atlantic Ocean. By "fully developed" is meant a case in which forty-eight or more hours have elapsed from the time of



deposition of the larvæ in the nostril. The maggots then are full grown, have a great deal of vitality, and are in incessant motion—an innumerable devouring horde.

Before resorting to injections of chloroform in the foregoing case I tried the effects upon the maggots of the various articles recommended, omitting decoctions of bitter herbs and tobacco. A number of the larvæ were put into a saucer containing a fifty-per-cent. solution of carbolic acid to a depth just short of complete immersion, so that respiration might not be wholly impeded. They struggled to escape, but were continually pushed back into the liquid until, at the expiration of five minutes, they were permitted to crawl out, in no way injured by the application. Immersion in a similar manner and for the same length of time in a 1-to-500 solution of corrosive sublimate was followed by like results. Oil of turpentine caused the movements to cease at the expiration of three minutes, but the maggots revived after removal. Five minutes' immersion caused death. Olive oil and balsam of Peru produced no effect. Calomel was without effect unless the maggot was buried in it for several minutes, causing death by suffocation. Chloroform when brought in contact with the half-grown larvæ caused almost instantaneous death; the full-grown larvæ were killed by it in from five to seven seconds. The vapor sufficed to stupefy them in a few seconds, but recovery followed its withdrawal.

It appears probable that a single injection of chloroform might effect a cure if administered within thirty-six hours from the deposition of the larvæ in the nostril. Not only are they more easily killed at this time, but the bulk is so much less that the remedy can more readily come in contact with them all. When full grown they fill the nasal fossæ and become imbedded in the swollen tissues to an extent that greatly increases the difficulty of their destruction. Mackenzie recommends that the patient be rendered insensible by the inhalation of the vapor before injecting chloroform into the nares, on account of the extreme pain caused by this procedure.

In the case reported above, syringing with carbolized oil a few seconds after injecting chloroform assuaged the pain; and the assistance of the patient in forcing the dead or stupefied larvæ from the nares, and expelling them from the pharynx through the mouth, was of great service.

The study of this case seems to indicate that in injections of chloroform into the nasal passages we have a reliable remedy for a disease which, under any other method of treatment hitherto recommended, has usually proved fatal.

**A Medical Marquis.**—The *British Medical Journal* states that Dr. Matias Nieto Serrano, the editor of *El Siglo Médico*, has been made Marquis of Guadalupe, in recognition of his services to science and to his country.

**Lemonade as a Vehicle for Chloral.**—Dr. E. Holland calls our attention to the fact that the taste of chloral hydrate is effectively masked by lemonade. Two or three drachms of the syrup should be placed in a tumbler with about two ounces of water; if to this is added about two ounces or so of gaseous (bottled) lemonade, the mixture may be drunk at leisure, and the soporific action of the drug is in no way impaired.—*Practitioner*.

## REPORT OF A CASE OF PELIOSIS RHEUMATICA.

WITH A SHORT DISCUSSION OF ITS ETIOLOGY.

By CUTHBERT R. BARHAM, M.D.,  
FELLOW OF THE PITTSBURGH ACADEMY OF STUDIES.

THE following case was seen in consultation, and it is through the courtesy of the attending physician that I am permitted to report it. It presents some features of interest, and is a comparatively rare disease in this country.

The history is as follows:

Female, aged twenty-two. General health until present sickness good. Born in Ireland: came to this country in August, 1892. Her father suffered from rheumatism. One week after landing she suffered from an attack of rheumatism of the knees ushered in by a severe cold, and accompanied by high temperature and tenderness and œdema of the affected parts. Recovery after three weeks.

The case was first seen by me with Dr. J. H. Wright, of Allegheny. At this time (December 8th) she presented marked swelling and tenderness of the knees, elbows, and wrists and some œdema of the legs. Over the knees and legs, but rather more pronounced over the extensor surface, were a number of red patches of various sizes from that of a finger nail to that of an egg, slightly elevated and infiltrated. The color did not fade on pressure. The same appearances were to be observed over the ulnar surface of forearms. The affected joints were fixed by reason of the intense pain on movement. The present attack had been precipitated by exposure to cold and snow one evening about a week before I saw her. The next morning she found her knees and arms "stiff," tender, and swollen. The appearance of the purpuric spots followed shortly. She was admitted to the hospital two days after the attack commenced. The temperature on her entrance, 103° F., gradually returned to normal. It was noticeable that the increase of pain and tenderness coincided with the rise in temperature, and gradually lessened with the lowering of the same, though the purpuric spots persisted some time afterward and went through the various stages of absorption, which was completed in about four weeks.

There are two views held as to the ætiology of the disease—one that it is a variety of erythema exudativum dependent on the same causes as rheumatism; the second that it is a variety of purpura closely allied to purpura hæmorrhagica and scurvy.

Von Ziemssen may be regarded as the exponent of this latter view. He, however, admits that a close ætiological relation probably exists between this form and articular rheumatism. In his discussion he quotes Traube, who tried to prove that articular rheumatism was identical with rheumatic purpura; and Immermann, who, while describing a rheumatoid purpura, yet considered it a variety of "purpura" as generally understood. Schwimmer considers it a tropho-neurosis due to a variety of causes.

Kopp, in his monograph on tropho-neurotic diseases of the skin, discusses purpura in general, and, referring to rheumatic purpura, says: "It is a question whether the ecchymoses do not owe their existence to the same causes as the rheumatism. This cause may be either a chemical alteration of the blood (rheumatic diathesis) or a specific infection." He states that in fifteen years' practice in large hospitals he has never encountered a case. All these au-

thorities, however, regard it as essentially the same as purpura haemorrhagica.

Of the former view we may take as our exponent Crocker, who considers it a variety of exudative erythema, probably due to the same cause as rheumatism. I am inclined to the former view, inasmuch as it presents many points of similarity. Both are introduced by rise of temperature and malaise; both are accompanied by a rheumatoid inflammation of the joints; in both the eruption tends to appear on the extensor surface, and is more abundant around the painful joints. The pathology, according to Crocker, is primarily that of erythema exsudativum, with supervening hæmorrhage. Previous attacks of rheumatism or of rheumatic purpura predispose to it, though its exciting causes are but little known, except that chill appears to be a factor in many cases.

## OLEUM TIGLII IN THE TREATMENT OF FRACTURE OF THE BASE OF THE SKULL,

WITH THE REPORT OF A CASE.

By B. F. PARRISH, M. D.

The case I have to report came under my care during my hospital service:

The patient, a boy of sixteen years, was brought to the hospital on October 22, 1890, by the ambulance in a state of delirium and unconsciousness.

The right side of his face was paralyzed and the right pupil was dilated. There was free bleeding from the nose, mouth, and ears. Later the discharge from these organs was serous. His symptoms showed cerebral laceration with compression.

The patient was put to bed and ordered to be kept as quiet as possible. His ears were syringed with 1-to-5,000 bichloride of mercury solution and then iodoform was dusted into the auditory meatus, and the whole ear was dressed antiseptically. His mouth and nose were cleansed with clean water. The patient was allowed milk, beef tea, etc. However, it was with great difficulty that he could be induced to swallow anything at all. For three days the patient's symptoms remained unchanged. His ears were dressed twice daily as long as there was any discharge from them, and then once a day for a week longer. On the third day (October 25, 1890), his condition not having changed, he was given two drops of oleum tiglii on the tongue. His bowels were freely moved by the oil, and in the afternoon of the same day he was so much better that he slept quietly for several hours. Up to this time he had hardly slept at all, and when he did doze he would every few minutes cry out at the top of his voice and throw himself violently around in bed. This time his sleep was unbroken. Upon waking he asked for food, a thing he had not done since he entered the hospital.

Not only was his delirium so diminished, but his facial paralysis was also much less marked.

October 26th.—Patient's condition not quite so good as yesterday afternoon. However, he drank some milk and egg.

27th.—Patient's delirium and paralysis increasing. Milk.

28th.—Patient's condition much the same as before the oil was given. Violent delirium and marked facial paralysis. He refuses to eat or drink anything. Two drops of oleum tiglii were given in the forenoon. In the afternoon his bowels had moved freely and his condition was much improved. His delirium was almost gone and the paralysis was much diminished.

He slept quietly several hours during the afternoon, and awoke asking for something to eat. He was given milk and egg.

29th.—Patient slept very well during the night and seems much better to-day. Milk, eggs, and beef tea.

30th.—Patient's condition is hardly so good as yesterday, still he takes nourishment. He did not sleep very well last night. His paralysis and delirium are returning.

31st.—Patient passed a bad night; his delirium and paralysis are still increasing. In the morning he was given two drops of oleum tiglii. In the afternoon, his bowels having moved freely shortly after the oil was given, he had a long, refreshing sleep. After waking he asked for food and drank a good bit of milk and egg, also some beef tea.

November 1st.—Patient's condition very good indeed. He slept well last night, and has eaten quite freely to-day. His delirium and paralysis are less than at any time since he was admitted.

2d.—The condition of the patient not quite so good as yesterday. Still he is fairly comfortable.

3d.—Patient did not pass a very good night. His delirium and paralysis are returning. He was given two drops of oleum tiglii. In the afternoon his bowels had moved freely and he enjoyed a good sleep. He again complained of hunger. He was given milk and eggs. Just as after the other doses, again his delirium and paralysis diminished.

4th.—Patient in very good condition. He slept well last night and eats well to-day.

5th.—Patient's condition is much the same as yesterday, except that his pressure symptoms are a little more marked. He slept moderately well during the night and has taken a fair amount of nourishment to-day.

6th.—The patient was rather irritable to-day, so was given another dose of the oil. In the afternoon he was decidedly better. His bowels having moved freely, he quieted down and slept several hours. He again complained of hunger and was given milk and eggs and beef tea. His pressure symptoms are less marked to-day than at any previous time.

7th.—Patient's condition good. He slept well last night and is quiet and easy to-day. He takes food with seeming relish. This is the first day he has taken solid food.

8th.—Patient's condition about the same as yesterday.

9th.—Patient's condition remains good.

10th.—The pressure symptoms are again increasing. He was given two drops of oil, which caused free watery stools.

11th.—To-day the patient is in fine condition and will doubtless recover. His mental state is very good and he talks intelligently. His facial paralysis is very little, there are slight dilatation of the right pupil and slight convergent squint on the right side, mouth is drawn a little to the left, and the tongue protrudes slightly to the right side. His appetite is good.

12th.—The patient has had the oil but once since last note. To-day he is in good shape and bids fair to be out in a few days.

25th.—The patient was discharged cured to-day with a very satisfactory result.

He still has a perceptible squint and a very slight tendency of the face to be pulled to the left and of the tongue to protrude to the right. The pupil is quite normal. His mental condition is not in the slightest impaired.

When the boy was last seen visiting at the hospital, he had almost completely recovered from the paralysis. Doubtless he has entirely recovered ere this.

During the whole time the patient was in the hospital his temperature never went above 100° F. Most of the

time it was near normal. The pulse also was normal most of the time, usually becoming a little slower and fuller as the facial paralysis indicated pressure upon the brain.

This is the only case of fracture of the base of the skull that I have treated with oleum tiglii. But the result was so satisfactory and its beneficial effects were so evident that I shall certainly give it another trial at my first opportunity.

Each and every time the oil was administered the delirium and paralysis diminished and the patient's condition was improved.

Its advantages are:

1. It is easy to administer. Frequently it is difficult to get the patient to swallow anything at all. This is easily given on the tongue.

2. It is a powerful derivative.

At the same time the blood-vessels of the alimentary tract are much dilated and filled with blood. Both of these results so diminish the blood and blood-pressure in the brain that inflammation is allayed and the exudation absorbed.

The disadvantages of oleum tiglii are:

1. It is very apt to cause the bed to be soiled by its precipitate action. This, however, can generally be avoided by giving the oil in the morning and placing the patient on a good-sized bed-pan and keeping him there until the bowels move, which time will vary usually from half an hour to two hours. Enough oil should be given to produce free purgation.

2. Its irritative action upon the alimentary canal. I do not believe its action upon this tract is so deleterious as to cause much trouble when the oil is given in two-drop doses not oftener than each second or third day. Of course it is not to be given oftener than the symptoms demand. I have frequently given the remedy in cases of delirium tremens without bad effects upon the digestive organs. Indeed, I invariably order two or three drops of the oil in a little pulverized sugar or gum acacia in beginning delirium tremens, and also after the symptoms have become well established, when I do not see the patient before that time. I have always secured the happiest effect with but little lasting irritation. It is wonderful how the cerebral congestion is relieved, and how the nervousness or delirium disappears under this treatment. So I feel that, compared with the beneficial results, the evil effects are extremely insignificant. I do not think any of the milder agents are to be compared with the oil.

463 FIFTH AVENUE.

**A Prize in Demography.**—Mr. Joseph Körösi, director of the bureau of statistics of the city of Budapest, has established a prize of 1,500 francs for the best essay on the object and progress of demography, which may be written in German, English, French, or Italian, and should be sent, without anything to indicate its author's identity, to Mr. Körösi before March 1, 1894.

**Taxes on Medicines and on Alcoholic Medicinal Preparations.**—Mr. S. M. Burroughs gave a dinner at the Fulton Club on Monday evening, the 6th inst., which was followed by a meeting to set forth and discuss the objects of a proposed international society for securing the abolition of taxes on medicines and on alcohol to be used in the preparation of medicines.

## THE NEW YORK MEDICAL JOURNAL,

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### THE "NERVOUS AMERICAN"

THE American is nothing if not good-natured. He pleads guilty to every slander, accepts every slight, and answers surliness with compliments. This he ought not to do, and it is refreshing to note an exceptional act on his part. We are glad, therefore, that Dr. Julius Pohlman, of Buffalo, has thought it worth while to gather together facts that go far to show that "the rushing American" does not pay the penalty of incessant activity by premature decay and death. The *Medical News* for March 4th contains a most interesting article by Dr. Pohlman on the Duration of Life of the Nervous American. The assumption, he says, that increased activity and greater hurry mean more rapid wearing away of the body ignores the fact that the human body is a wonderful piece of machinery, not only renewing itself constantly, but having its strength, its power of endurance, and its capacity for work heightened with increased use up to the point at which use becomes abuse. The strength of an organ, he adds, is determined by its use, whether the statement is applied to the brain or to the foot, to intellectual work or to physical labor.

Excluding general statistics as being susceptible of being "made to prove opposite problems," Dr. Pohlman has concluded that the life-insurance companies' data are to be depended on. "If," he says, "the European's lease of life is longer than that of the American, then the insurance company will insure him at a smaller premium than his American brother, and, if the latter wears out faster, it would be a suicidal policy for any life-insurance company to insure him at the same premium at which the risks are taken in Europe on Europeans." Accordingly, he has taken pains to obtain information from four large New York life-insurance companies doing business in both Europe and America. The Equitable says to him: "Our rates in Europe are the same as in the United States. In some parts of Europe we charge more, but it is not so much on account of the fear of extra mortality as on account of the onerous conditions under which we are compelled to do business." The Mutual says: "The experiences of British and German companies show that the lives which were insured in those companies were not on the average as good as the lives insured in American companies. The experience of this company is thus far quite as favorable on its European business as on its business in this country." The New York says: "The rates charged in most parts of Europe and England are the same as those charged under similar conditions in this country." The Germania says: "Our premiums are higher in Europe than in America."



After giving a tabular comparison of the American's, the Englishman's, and the German's expectation of life at different ages, founded on data collected by the actuary of the Germania Life Insurance Company, Dr. Pohlman remarks that the figures certainly show, so far as life-insurance statistics go, that the American's chances, all ages considered, are a little better than his English brother's and a good deal better than the German's, in spite of all statements about climate and nervousness. We Americans, then, have "adapted the machinery of our body to a high speed without hurting ourselves, while our European brethren dodge along at a low pressure without, on that account, prolonging their life."

Still, the American boy's expectation of life, up to the age of twenty, is somewhat less than the English boy's (the figures for Germans under twenty-one years old are not given), and leads Dr. Pohlman to ask if the American woman is a less capable mother than her English sister. "Has she," he asks, "in her striving for fashionable fads and foibles, for literary crazes, women's advance clubs, and political organizations, ignored or neglected or forgotten the first and most important function of a woman, the duties of motherhood?" The American boy gains on the English boy "from year to year, as he grows away from mother's care or carelessness, as the case may be." Therefore, he says, let us not impute the heavy mortality among our children to the climate, but, having tried to find out how much, if anything, that factor has to do with it, set to work to investigate the action of other contributory circumstances.

#### THE QUARTERING OF PERSONS SUFFERING FROM INFECTIOUS DISEASE.

An institution that ought to be provided in every large city is a comfortable and well-managed refuge for persons attacked with some infectious disease elsewhere than at their own homes. New York is thus far destitute of such a refuge. To be sure, there are the hospitals in East Sixteenth Street and on North Brother Island, in each of which excellent work is undoubtedly done in the care of persons belonging to the class from which the wards of free hospitals are for the most part filled, but neither of them is a place to which a well-to-do person—man, woman, or child—taken ill in a boarding-house or hotel would like to be taken. It is not right for the community to insist that he shall be taken to such a place, and that is what it practically does insist upon when it fails to provide a suitable resort—one where there is comfort as well as safety. The health department of the city, clothed as it is with very great powers to act in such cases, doubtless takes this view of the matter when it refrains from forcibly conveying a sick person to one of the hospitals mentioned.

It hardly falls within the duty of the municipality to furnish attractive resorts for persons sick with infectious disease. They should be provided by wealthy and benevolent citizens associated for the purpose, and they might, we think, readily be made nearly if not quite self-supporting. An element of gratuitous service should enter into their management, however,

to lift them above the level of mere business ventures, if for no other reason. Instead of a single large institution for the reception of persons with infectious disease of whatever sort, there should be one for scarlet-fever patients, another for typhus-fever patients, and so on; for it would be calamitous for a person attacked with measles to go to a place where he would be pretty sure to be subjected to the infection of diphtheria, for example. The individual buildings need not be far apart; indeed, they might all be grouped around an administrative building without giving ground for fear of spreading disease, provided they were carefully managed. As a whole, the institution need not be a large one or a very expensive one. The need of it is so evident that we hope its creation will before long be undertaken.

#### MINOR PARAGRAPHS.

##### URETERECTOMY.

At a recent meeting of the Paris *Société de chirurgie*, reported in the *Union médicale* for February 18th, M. Reynier reported a case of nephropoysis in a young soldier. Lumbar nephrectomy was performed on the 27th of May, 1892. A portion of the ureter was removed with the kidney, but the remaining portion of that canal was found in the course of a few days to be the source of a purulent discharge that escaped from the wound, and cystoscopy showed that there was a trickling of pus from the right ureter into the bladder. On the 29th of June an attempt was made to remove the whole remaining portion of the ureter by the lumbar incision, when it was found possible to pull out from sixteen to seventeen centimetres of its length, which was greatly dilated. Unfortunately, the ligature cut through its coats, and a fistula persisted. A subsequent attempt to remove what still remained of the ureter by Roux's ischio-rectal (pararectal) incision proved unsuccessful. Finally, on the 5th of November, a suprapubic operation was undertaken, Peter-en's balloon being used and an incision made like that for ligation of the iliac artery. The vas deferens was taken as a guide and, the junction of the ureter with the bladder having been reached, a ligature was applied close to the bladder and the twelve centimetres of ureter that remained were removed. The patient made a good recovery. As a guide to the situation of the ureter, when it is to be sought for by an incision through the anterior abdominal wall, M. Reynier specifies the point of intersection of a line drawn between the two anterior superior iliac spines with a line extending vertically upward from the pubic spine.

##### SUDDEN DEATH IN PLEURISY.

The *Lancet* for February 25th alludes to a case reported by M. Lesueur in the *Année médicale de Caen*. A young woman of good constitution and previous good health was attacked with pleurisy of the left side, with an abundant effusion. On the twelfth day, when the effusion was subsiding satisfactorily, she got out of bed, although she had been advised not to do so. She soon returned to bed and at the same time was seized with severe pains and a feeling of suffocation. Her lips were found to be blue and her pulse was thready. She grew less and less able to speak, and died within four hours. Various explanations of the occasional occurrence of sudden death in pleurisy have been given. In this case no disease of the heart or lungs could be detected, and M. Lesueur suggested that the death was due to arrest of the heart by reflex irritation of the cardiac

inhibitory apparatus by reason of intercostal neuritis, although he admitted that it might have been brought about by asthenic syncope consequent on the premature resumption of the erect posture.

#### THE UTILITY OF GUM-LANCING.

APPROPOS of an article on this subject in the December number of the *University Medical Magazine*, Dr. John M. Langhorne, of Uniontown, Ala., writes to that journal to the effect that in an experience of forty-seven years he has in numerous instances lanced infants' gums in cases of difficult dentition, and that in none of them has it produced any bad effect, but, on the contrary, has generally been followed promptly by the disappearance of fever and fretfulness. Dr. Langhorne closes by citing a curious case from the writings of the late Dr. D. Francis Condie, of Philadelphia. A surgeon, desirous of ascertaining the condition of the alveoli in a child that apparently had died of difficult dentition, made a free incision through the gums, "whereupon the child opened his eyes, the shroud was removed from the body, and by careful and persevering attention the child's life was saved."

#### A CASE OF ABSENCE OF THE HUMERUS.

At a recent meeting of the Imperio-Royal Society of Physicians of Vienna, reported in the *Mercredi médical*, Professor Billroth showed a man, thirty-four years old, who, in spite of the entire absence of the shaft of the humerus, was able to use his arm well enough to perform his duties as a coachman. At the age of five years he had been thrown down by a carriage, which passed over the arm, and protracted suppuration followed. At the time the patient was shown, the humerus was found to have been replaced by a hard cord, as large as the thumb, probably containing the blood-vessels and nerves of the arm and perhaps some of its muscles. There were no trophic disturbances of either the forearm or the hand.

#### STRYCHNINE IN THE TREATMENT OF SNAKEBITES.

THE *Australasian Medical Gazette* for January gives brief accounts of several cases of the successful use of strychnine in persons suffering from the bites of various kinds of venomous snakes. The alkaloid is injected subcutaneously in rather large doses. In one case, that of a girl twelve years old, a fifteenth of a grain was injected twice within the space of ten minutes. In another case, one of tiger-snakebite, of which the *Gazette* hopes to give a full account in its February issue, ten injections of a tenth of a grain each were given—a grain in all. This plan of treating snakebites is credited to Dr. August Mueller, of Yackandandah. The confidence felt in it is shown by the fact that "snakebite antidote pocket-cases" designed specially for its employment are advertised by a Sydney instrument-maker.

#### A TRULY VERMIFORM APPENDIX.

THE *Boston Medical and Surgical Journal* for March 2d credits Dr. Parker Syms with having referred, in a discussion at a meeting of the New York Surgical Society, to a vermiform appendix that, having come into view in the course of an oophorectomy, was removed because, although it was healthy, it was feared that its great length—over five inches—rendered it apt to give trouble at some subsequent time. After its removal it "continued for about ten minutes to squirm and turn on the plate very much as a grubworm might do, and finally a formed fecal movement took place from it."

#### A NEW METHOD OF INFLATING THE TYMPANUM.

DR. T. PAGAN LOWE describes in the *British Medical Journal* for February 25th this method of inflation: The patient is directed to hold the breath at the end of a deep inspiration, the lips being tightly closed. Air is then forced into one nostril with a syringe—preferably a four-ounce ball syringe attached by two feet of soft-rubber tubing to a large conical hard-rubber nose piece—the other nostril being compressed. The method is recommended as an alternative in case Politzerization, Valsalva's method, or catheterism is impracticable or objectionable.

#### CHOLERA AT MARSEILLES.

IN view of the fact that there were thirty-nine deaths from cholera in Marseilles within four days from February 2d, when the existence of the disease there was officially recognized, *Lyon médical* thinks it rather optimistic to found a favorable forecast on the comparatively low general death rate reported. Moreover, it says, citing the Marseilles correspondence of the *Médecine moderne*, it is difficult to ascertain the number of cases, for many of the physicians do not report the cases of recovery, and even in death certificates do not give the disease its real name, but mention it by such titles as *gastro-entérite*, *diarrhée cholériforme*, or *grippe à forme intestinale*.

#### THE CARE OF PUBLIC URINALS.

ACCORDING to a recent article in the *Revue d'hygiène*, summarized in *Lyon médical*, a Viennese secret preparation, a mineral oil, has for some time been in satisfactory use in Berlin as a substitute for the costly and inefficient flow of water to combat incrustation with urinary salts and their ammoniacal fermentation. The urinal is painted with the oil every day, and a small amount of it is allowed to float on the water about the outlet. In France it is proposed to experiment with vaseline, paraffin, or some other fatty petroleum product.

#### HÆMOGALLOL AND HÆMOL.

IN the *Internationale klinische Rundschau*, No. 2, 1893, there is an article by Dr. Lang, summarized in the *Deutsche Medizinische Zeitung*, who reports excellent results from the use of these ferruginous preparations. Hæmogallol he has employed in anæmia following protracted rheumatism, in neurasthenia dependent on anæmia, in anæmia associated with corpulence, in anæmic subjects of heart disease, and in the anæmia and migraine of dyspeptics. Hæmol has been particularly useful in chlorotics.

#### OCCASIONAL UNILATERAL EXOPHTHALMIA.

THE *Union médicale* for February 14th gives a brief account of some remarks made by M. Sergeant at a meeting of the Paris *Société de biologie* on the occasion of presenting a man, forty-four years old, who since the age of seven had had exophthalmia on the left side, which came on whenever he stooped or made an effort. This "voluntary" exophthalmia, so to speak, was venous in nature, as was shown by the effects of compressing the jugular vein, and three cases of the kind had previously been published.

#### MENSTRUAL BLOOD AS A LOVE POTION.

THE *Cincinnati Lancet-Clinic* remarks that persons of color have some very peculiar ideas on the subject of love charms, but avers that the following is entirely new to it: The woman mingles some of her menstrual blood with the coffee that is to

be drunk by her lover "to keep him true and excited." "We can readily see," says the *Lancet-Clinic*, "how the latter effect might be produced were he cognizant of the nature of the material taken."

#### NARCEINE.

At a recent meeting of the Paris *Société de thérapeutique*, reported in the *Union médicale*, M. Constantin Paul stated that true narceine was insoluble and inert. Claude Bernard had employed in his experiments an alkaloid that could not be recovered; it was more soporific and less poisonous than morphine. M. Bardet regarded the substance used by Bernard as complex, and said that he had taken fifteen grains of the narceine of the present day without noticing any effect.

#### THE INDIAN MEDICO-CHIRURGICAL REVIEW.

The number of medical journals recently started in India and Australasia is notable. Not the least among those that have come under our observation is the *Indian Medico-chirurgical Review*, a monthly edited by Dr. N. H. Choksy and published in Bombay. The first number, for January, 1893, contains sixty-six pages of reading matter, valuable for its character and variety.

#### A PILL FOR ANEMIA WITH CONSTIPATION.

The February number of the *Practitioner* gives the following formula of a pill for anemia with constipation: A quarter of a grain each of extract of nux vomica and aloin, half a grain each of powdered myrrh and powdered ipecac, a grain of dried iron sulphate, and two grains of extract of gentian. One such pill is to be taken every night.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 7, 1893:

DISEASES.	Week ending Feb. 28.		Week ending Mar. 7.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus . . . . .	11	4	15	4
Typhoid fever . . . . .	11	6	15	4
Scarlet fever . . . . .	180	15	199	16
Cerebro-spinal meningitis . . . . .	1	3	8	4
Measles . . . . .	109	5	105	4
Diphtheria . . . . .	105	33	104	26
Small-pox . . . . .	15	2	9	2

**British Precautions against Cholera.**—The *British Medical Journal* for February 25th gives a brief account of a conference of port-sanitary authorities held in London on the 17th ult., at which it was resolved:

1. That, inasmuch as special cholera precautions carried out by the port-sanitary authorities are for the benefit of the whole population, those precautions, as far as they are special, should be carried out at the imperial expense.

2. That the medical inspection of all ships arriving at British ports from any port infected with cholera should be kept up by night as well as day as far as practicable, and that every British port should be provided with staff and appliances sufficient for this purpose.

3. That it is desirable in all cases that power of detention should be obtained of all vessels coming from infected ports.

4. That information as to infected ports should be forthwith issued by the local government board to the various port sanitary authorities.

5. That the detention of the medical officer of health on board a vessel until she had received a quarantine certificate was objectionable and should be abrogated.

6. That statutory power should be obtained to penalize false answers given by the masters of vessels to questions put by the authorities as to the health of the crew, and that the penalty should be increased.

7. That power should be obtained to require all vessels (including fishing vessels) having been in communication with infected or suspected ports to hoist a distinguishing signal on arrival.

8. That the quarantine or detention of vessels having no sickness on board, and so certified by the port medical officer, is unjustifiable.

9. That there should be an alteration of the cholera regulations enabling addresses of destination of the passengers and crews of vessels to be sent direct to medical officers of health.

10. That the crews of all vessels, while in infected or suspected ports, should be prevented from going ashore.

11. That the discharge of fresh-water ballast or fresh-water sand (whether as ballast or cargo) from an infected port into any British port should be prohibited.

**Columbia College.**—In the department of biology, in the faculty of pure science, Dr. Boshford Dean's concluding lectures of the course on The Origin and Evolution of the Fishes will be given on Thursday, the 16th (Chimæra and the Lung-fishes; the Newbury Collection of Giant Placoderms), and Thursday, the 23d inst. (The Embryology of Fishes). Mr. Arthur Willey's lectures on Amphioxius and Other Ancestors of the Vertebrates will be given on March 30th and April 6th, 13th, 20th, and 27th.

**A Statue of the late Professor Gross.**—The Alumni Association of the Jefferson Medical College has appointed a committee to raise funds for the erection of a bronze statue, of life size, of the late Professor Samuel D. Gross, M. D. About \$9,000 has been paid into the treasury, and \$3,000 are still needed to complete the fund. Checks may be drawn to the order of J. B. Chapin, M. D.

**The Jersey City Hospital and Dispensary.**—An examination for appointment on the resident staff will be held at the hospital, corner of Baldwin Avenue and Montgomery Street, on Wednesday, the 29th inst., at 12 M. Candidates must be graduates in medicine.

**The Society of Medical Jurisprudence.**—At the next meeting, on Monday evening, the 13th inst., S. B. Livingston, Esq., of the New York Bar, will read a paper on Suicide and Recent Reactionary Legislation.

**Change of Address.**—Dr. Calvin Thayer Adams, to No. 8 West Thirty-third Street.

**Army Intelligence.**—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 26 to March 3, 1893:

MOSELEY, EDWARD B., Major and Surgeon, now on duty in Washington, will, by direction of the Secretary of War, report in person to the Surgeon-General of the Army for duty in his office as soon as O'REILLY, ROBERT M., Major and Surgeon, shall report for duty as attending surgeon in this city.

The suspension of the order directing O'REILLY, ROBERT M., Major and Surgeon, to report for duty as attending surgeon in this city, is, by direction of the Secretary of War, removed.

O'REILLY, ROBERT M., Major and Surgeon, having reported to the Major-General Commanding the Army, is assigned to duty as attending surgeon in this city, to date from February 28, 1893.

BARTHOLOMEW, JOHN H., Major and Surgeon, is granted leave of absence for six months, to take effect March 13, 1893, with permission to go beyond sea.

#### Society Meetings for the Coming Week:

MONDAY, *March 13th*: New York Ophthalmological Society (private); New York Medico-historical Society (private); Society of Medical Jurisprudence; New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *March 14th*: New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings



County Medical Association; Medical Societies of the Counties of Chemung (quarterly)—Elmira, Kennesaw, and Ulster (quarterly); N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Northwestern Medical Society of Philadelphia; Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, March 15th: Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; Harlem Medical Association of the City of New York; Medical Society of the County of Alleghany (quarterly), N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, March 16th: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, March 17th: New York Academy of Medicine (Section in Orthopedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, March 18th: Clinical Society of the New York Post-graduate Medical School and Hospital.

## Letters to the Editor.

### WOUNDS WITHOUT INJURY TO OVERLYING CLOTHING.

529 OLIVE STREET, ST. LOUIS, MO., February 28, 1893.

To the Editor of the New York Medical Journal:

SIR: In the *Journal* of February 25th mention is made of a case of a man sustaining a lacerated wound resembling a stab that had been inflicted without injury to the clothing covering the part, reported in the *Lancet* of recent date. The remark at the end of the paragraph that well-attested instances of this sort are of important medico-legal significance has led me to mention my own experience.

Some ten years ago, being on a hunting trip in a very thick country where it was often necessary to cut away the thick growth in our trips through the woods, I had formed the habit of carrying a small hatchet stuck in my belt. While following game down a rather steep hill I had the misfortune to trip over a vine and fall forward quite heavily, driving the blade of the hatchet violently against my thigh. Upon regaining my feet I felt for the cut in my hunting trousers, but, not finding any, naturally concluded that I had not been cut, and went on my way. My thigh pained me some, but I attributed it to a bruise, but after a while I was astonished to find that my thigh was quite wet, and after removal of my clothing found that I had sustained a cut about three quarters of an inch in length. I then carefully examined my trousers for a cut, but could find none.

The wound was a lacerated one, and I concluded had been made by the corner of the hatchet-blade driving the clothing ahead of it. The scar covering the wound is nearly as broad as it is long.

GEORGE M. WAGNER, M. D.

### THE "ELECTRICAL NOVELTY."

91 STORM AVENUE, JERSEY CITY, March 6, 1893.

To the Editor of the New York Medical Journal:

SIR: I was very much surprised to see printed in the last issue of the *New York Medical Journal* a letter in which my name is mentioned, and which is signed R. C. Rutherford. It surprised me, simply because I did not know you admitted communications exactly of that type into your columns.

In hastily glancing it over, the only matter at all deserving my attention—and one which does me great injustice, if not already even serious injury with the public—is the insinuation, or

assertion (I don't remember which, as I have not a copy of the *Journal* to refer to), that I am interested in the manufacture of some particular shoe. I beg to ask space in your earliest issue to say that I am not either directly or indirectly connected with or interested in anything whatever of the kind; but, on the contrary, am offering the public all the information of which I am capable on the subject on which I write, my only reward being the price which the various publishers are willing to pay me for my articles.

I am deeply sensible of your courtesy in allowing me space in the past to offer my views on the importance of electrical earth-connection as a necessary condition to human health; and am perfectly happy for the present in leaving the matter where it stands so far as your valuable journal is concerned.

GEORGE QUARRIE.

\*\* We can not allow this controversy to be further continued in our columns.

## Proceedings of Societies.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eighty-seventh Annual Meeting, held in Albany on Tuesday, Wednesday, and Thursday, February 7, 8, and 9, 1893.

The President, Dr. LEWIS S. PILCHER, of Brooklyn, in the Chair.

(Continued from page 252.)

### The Report of the Committee appointed to consider the Recommendations in the Inaugural Address was as follows.

The recommendation that the regents require of candidates for the degree of doctor in medicine that they should have attended at least three cases of labor, and furnish suitable evidence of the same, was approved.

The committee regarded the present law concerning medical examinations as satisfactory, with the foregoing exception, and hoped that the society would so record itself.

The recommendation that the annual meetings of the county societies be held in the month of May was approved.

The committee recommended that in future the society should determine in each case of alleged unprofessional conduct whether such allegation was well founded, the charges to be referred to a committee on ethics, and that the present by-law which referred to a code of ethics be dropped.

It was also resolved that it would be unwise to appoint a committee of conference as suggested by the American Medical Association, and it was hoped that that association would take such steps as would remove the technical differences which prevented the most cordial relations between the two bodies.

The report was unanimously adopted, the portion referring to the code being substituted in the by-laws for that portion which had been dropped.

The Report of the Committee on Legislation approved of the present law relating to medical education. It was believed that there was no occasion for the formation of new medical colleges in this State, and that the laws on this subject should be very stringent. It was believed that physicians should be the principal and controlling members on local and State boards of health, and that the statute that prevented a physician from holding the presidency of a local board of health should be repealed. It was reported as an evidence of progress that the testimony of physicians required in courts of law could now be taken in the office of lawyers or referees, so that the

necessity of losing time by waiting in court rooms was overcome.

This report was adopted.

**The Committee appointed to consider Matters relating to Public Health** reported favorably concerning the re-establishment of a national board of health, and offered a resolution that the question of quarantine be lodged entirely with the national Government. It was also recommended that a committee of seven members of the society be appointed to confer with the committee from the New York Academy of Medicine which had the same subject under advisement, and that Congress be petitioned to pass a suitable and comprehensive quarantine law during the present session.

**The Management of Suppuration complicating Tuberculous Disease of the Bones and Joints.**—Dr. V. P. GIBNEY, of New York, observed that rest and suitable protection of tuberculous joints, when used at the right time, were valuable measures. The rest which was to be obtained by certain forms of splints was very desirable. If the case was seen early in the history of the disease, and was properly cared for, recovery might take place without suppuration; on the other hand, a case might terminate in suppuration no matter how it was cared for. The surgical rule to remove pus wherever found did not apply to cold abscesses, but the latter could now be attacked fearlessly since the era of antiseptis, even when involving the large joints. Aspiration of small abscesses of the joints was favored, three to six operations being usually necessary before a cure could be expected. Of the patients that were operated upon in this way, fifty per cent. were cured; the remainder required some form of bone operation. The rule concerning operations should be non-interference unless one was equipped for the performance of as complete and thorough an antiseptic operation as might be required. Excision of bone was not indicated in all cases in which the bone was diseased. The most favorable cases for operation were those in which the abscess was in the gluteal region, for the opportunities for drainage in this location were good. The least favorable cases were those where the abscess was on the inner side of the thigh, in which the opportunities for drainage were poor. Only a small percentage of cases presented favorable opportunities for partial arthrectomies and gouging of bone. It was never necessary to amputate the leg in children for tuberculous disease of the ankle joint. In tuberculous disease of the spine a suitable splint would be found useful for a long time. The following rules would be found serviceable: Tuberculous joints should be protected in the early stages of the disease, and subsequently aspiration or incision should be practiced. Small abscesses could be disregarded or aspirated. Fifty per cent. of the cases of aspiration resulted in recovery. The question of excision of joints, especially the hip joint, must depend upon the condition of the patient. The expectant treatment was most suitable for cases of disease of the knee and ankle.

Dr. ROSWELL PARK, of Buffalo, took the ground that pathological knowledge was a safer guide than clinical experience without it in the treatment of tuberculous disease of the joints. As to the comparative value of orthopaedic apparatus and operative interference, the latter was often to be preferred, because it greatly shortened the duration of the disease. The speaker was not favorable to the treatment by injection of iodoform and glycerin into the joints. Those who were cured by this treatment could be cured as well by other methods. The pain of tuberculous joints was often to be relieved by ignipuncture. The operation of aspiration should be attempted only when full preparations had been made for the performance of a more extensive operation if it was required. In certain cases the use of chloride of zinc, tuberculin, or guaiacol would be

found efficient, notwithstanding the prevalent skepticism upon that subject. Surgical procedures were, on the whole, regarded as the most suitable for the class of diseases under discussion, and it should always be the rule to remove all tissue that was in the least suspicious. The general rule to remove pus wherever found did not necessarily apply to cold abscesses, because the constituents of such abscesses were not the same and were not equally infectious with those of acute abscesses.

Dr. LOUIS A. WEIGEL, of Rochester, observed that the general and the orthopaedic surgeon differed particularly as to their predilections. There were two varieties of orthopaedists—one of them favoring the use of mechanical supports, and the other a combination of the mechanic and the surgeon. The latter was the one who got the best results. The expectant treatment was advocated for certain conditions of bone disease; if it was to be interpreted as doing nothing, it was an undesirable method. In some cases the most effective conservatism would consist in the use of the knife. The element of time should not be disregarded with children, as it too frequently was. If their time was not as valuable intrinsically as that of adults, the longer a disease lasted the greater was the expense in tissues and vital force. The argument was often used that operations were performed upon hospital children to shorten the period of treatment. The treatment in such cases was very productive of good results. If the argument was valid for the children of the poor, why was it not equally so for the children of the well-to-do? Three questions which were very important for the consideration of orthopaedists were: Did the so-called conservative treatment of tuberculous disease at the hip joint produce shortening of the limb? Was such treatment likely to lead to destruction of the joint? What were the probabilities of infection after an operation had been performed upon a tuberculous joint?

Dr. HENRY LING TAYLOR, of New York, said that the contents of a cold abscess were not pus, but an emulsion of the degenerated products of tubercular granulation; infection with the microbes of suppuration might complicate the original condition. He wished in his paper to emphasize the paramount importance of adequate treatment of the focal tuberculosis upon which such abscesses primarily depended. Their course was benign in the large majority of cases, if the diseased joint or spine was given positive mechanical protection according to modern methods. He cited numerous authorities to show that when this was thoroughly done such abscesses were much less likely to occur, and that when they did occur they were much more amenable to treatment on any rational plan.

In regard to the local treatment of the abscess itself, in cases of acute abscess—true suppuration—early evacuation and the employment of means proper to render the cavity aseptic were indicated. In addition to the usual solutions, peroxide of hydrogen had proved itself a valuable pus-killer. In cold abscess the author's preference was in most cases for early evacuation, using peripheral compression and drainage if necessary. He had a high opinion of the value of iodoform, but a rather poor opinion of the aspirator, since it was easily clogged. The more thoroughly strict mechanical protection to the diseased joint was used, the less frequently would the severer operations be required, the less would be the danger when they were employed, and the more favorable would be the result.

**The Pathology of Carcinoma** was the title of a paper by Dr. H. C. COZ, of New York. Much had been hoped for from bacteriology in regard to the elucidation of the pathology of carcinoma which had not yet been realized. A variety of opinions was quoted with reference to the nature of the epithelium in cancer. The real cause still remained unknown.

Self-inoculation in cancer was the same kind of a phenomena

non as metastasis. Billroth's idea was that cancer was a parasitic disease; that the disease must develop from the exposure of epithelial cells to external infection. The metastatic extension of the disease was to be distinguished from its extension directly, and could be accomplished only through the lymphatic system. Cachexia in cancer must be regarded only as an evidence of a degenerate condition of the system. Persistent local irritation was powerful as a causative factor, but it was supplementary to some other influence as yet unknown. In the hard form of cancer there was an apparent change from a malignant to a quasi-benign condition. This process was a very interesting one and might continue in a given case for a long time. The only efficient form of prophylaxis yet known consisted in the removal of all tissues which could be suspected of malignancy. Whether a specific treatment of cancer was possible could not be definitely answered. The best method of treatment consisted in the early and complete removal of all diseased tissues, and it was difficult to define in a given case the limit of the infiltration of the germs of the disease.

**The Parasitic Theory of the Etiology of Carcinoma** was the title of a paper by Dr. Roswell Park. (See page 213.)

**The Value of Internal Medication in the Treatment of Carcinoma.**—Dr. JARVIS S. WRIGHT, of Brooklyn, read a paper on this subject. Could medicine be of any use in the prevention and cure of malignant disease? Cancer and sarcoma were probably due at the outset to local infection, and prevailed especially in cases in which the cells were senile. Surgical treatment should, theoretically, be effective if the operation was sufficiently extensive. The habitat of the micro-organism of cancer could not be determined until it was determined what the micro-organism was. In the way of medical treatment, some cases were benefited by the use of bichloride of mercury, iron, arsenic, etc. It was even possible that some cases might be cured by such treatment. The speaker had seen very good results from the internal use of bromide of arsenic and carbonate of calcium. Medicines should be used in cancer on the same general principle on which they were used in other diseases, and the time would come when the substance would be found which had an affinity for the germs of the disease.

**The Results Obtainable from the Use of Aniline Products in Carcinoma.**—Dr. WILLY MEYER, of New York, in a paper thus entitled, said that patients with cancer in an incurable form should not be turned aside as requiring no attention any more than those who had other incurable diseases. This thought furnished ground for the use of the aniline dyes, especially fuchsin and pyocetanin, also erysipelas inoculation, and the subcutaneous injection of neurin. Aniline dyes in the treatment of cancer had first been recommended by von Mosetig Moorhof, and his work had suggested the reader's experiments. Pyocetanin was prepared in various forms, in two colors—blue and yellow. It was not poisonous, and could be used internally in doses of ten or twelve grains. Its analgesic effect was very marked, and in some instances enabled one to dispense entirely with morphine. Locally it caused breaking down of ulcerated tissues, while the cachexia attending the disease was relieved. In unbroken tissues its effect was to cause diminution of oedema, then the breaking down and discharge of diseased tissue. The epithelial cells and their nuclei were not affected by the substance under discussion. Adamkiewicz held the opinion that cancer was a parasitic disease. The treatment was usually only palliative; in ten per cent. of cases it had been curative.

**Caustics in the Treatment of Carcinoma.**—Dr. DANIEL LEWIS, of New York, in a paper with this title, approved of the use of the knife in all operable cases. If caustics were used at all, he favored only the potential caustics. Unna and Dühring had recommended that only mild caustics should be used, on

the ground that too much irritation was caused by the more powerful ones. The author did not agree to this view. Caustics were not admissible in the treatment of cancer of the breast, and but seldom in the treatment of cancer of the uterus.

**The Knife in the Treatment of Carcinoma.**—Dr. N. JACOBSON, of Syracuse, was in favor of this method of treatment, and believed that it should always be used as thoroughly as possible. Partial operations, partial removal of diseased organs, were not desirable.

(To be continued.)

## Miscellany.

**The Eleventh International Medical Congress.**—The inauguration of the congress will take place on the 24th of September, 1893, in the presence of H. M. the King of Italy. The work of the congress will begin in the nineteen sections on the morning of the 25th of September. It will be continued in accordance with the arrangements to be made and published both for the general sessions and for the sections. Some of the general sessions will be devoted to scientific addresses delivered by scientists of all nations.

**List of the Series.**—Anatomy; Physiology; General Pathology and Pathological Anatomy; Pharmacology; Internal Medicine; Diseases of Children; Psychiatry, Neuropathology, and Criminal Anthropology; Surgery and Orthopaedy; Obstetrics and Gynecology; Laryngology; Otolaryngology; Ophthalmology; Odontology; Military Medicine and Surgery; Hygiene; Sanitary Engineering; Dermatology and Syphilology; Forensic Medicine; Hydrology and Climatology.

**Regulations.**—1. The Eleventh International Medical Congress will be inaugurated in Rome, on the 24th of September, 1893, and will close on the 1st of October.

2. Any physician may become an active member of the congress by fulfilling the conditions of membership, inscribing his name, and securing his admission ticket.

3. Scientists of other professions who, through their special studies, are interested in the labors of the congress may acquire the rights and assume the duties of active members, and participate in the work of the congress, both by communications and by discussions.

4. The fee for admission to the congress is twenty-five francs, or five dollars.\* It entitles to a copy of the *Transactions* of the congress, which will be forwarded to the members immediately after publication.

5. The character of the congress is strictly and exclusively scientific.

6. The work of the congress will be divided among nineteen sections; every member is requested to indicate, on paying his admission fee, the section for which he desires to be inscribed.

7. The provisional committee will arrange the appointment, in the opening session, of the permanent officers. There will be a president, three vice-presidents, a number of honorary presidents, and secretaries. Each section will elect in its first meeting its president and a certain number of honorary presidents, who shall alternately take the chair during the session. Some of the secretaries will be chosen from among the foreign members, in order to facilitate the recording both of communications and of discussions in the different languages.

8. There will be daily sessions, either general or sectional. The times and numbers of the general sessions and the business to be transacted in them will be arranged by the president of the congress.

9. The general sessions are reserved (a) for the consideration of the common work of the congress and of its common interests; (b) for addresses and communications of general interest and importance.

10. The addresses in the general sessions and in such extraordinary sessions as may be arranged, will be delivered by members chosen by the committee for the purpose.

11. Papers for and communications to the congress must be an-

\* Money order or check to the treasurer, Professor Comm. L. Pagliani, Rome, Italy.



nounced on or before June 30, 1893. A brief abstract of every paper and communication, with their conclusions, must be sent to the committee on or before July 31st. All of them will be printed and distributed to the members by authority of the president. Such as arrive after that date can not be expected to find a place on the regular order of business, and will be accepted only if time will permit.

12. The business of the sections will be arranged by their presidents, who will also determine the hours of meeting, avoiding those reserved for the general sessions. Two or more sections may hold joint meetings with the consent of their presidents. There will be no vote on scientific questions.

13. Fifteen minutes are allowed for the reading of a paper or communication. In the discussion every speaker can have the floor but once, and for five minutes only. To close the discussion the author of the paper is allowed ten minutes. Additional time may be given him by the president, by special resolution of the section, if the importance of the subject under discussion appears to require it.

14. The manuscript of all addresses, papers, and communications read either before a general session or a section must be handed to the secretary before the close of the meeting. A special committee on publication appointed by the president will decide which or what part of them shall be published in the *Transactions* of the congress. Such members as participated in the discussions are required to hand to the secretaries their remarks in writing.

15. The official languages of the sessions are Italian, French, English, and German. The regulations, programmes, and daily bulletins will be published in these four languages. During the meetings, however, a member may be permitted to use, for a brief remark, any other language, provided some member present expresses his willingness to translate such remarks into any of the official languages.

16. The president directs the discussions according to the parliamentary rules generally obeyed in similar assemblies.

17. Persons not classified under Article 3, who are interested in the labors of a special section, may be admitted by the president of the congress. They will receive a special ticket on paying their admission fee, will not be entitled to a copy of the *Transactions*, and can not speak in the general sessions or in any section other than that for which they were inscribed.

18. The president may invite or admit students of medicine to attend and to listen. They will be given a special admission ticket, free of charge.

*Journeys and Reduction of Fares.*—The provisional committee has made arrangements with the different Italian and foreign railway and navigation companies, in pursuance whereof special reduced prices have been granted on the steamers and railways of this country and of the countries which the members of the congress are to traverse.

In Italy the members of the congress will find tickets for round trips, starting from Rome; they will thereby be enabled to visit the most important cities and the various universities. In regard to this, further notice will be given.

*The Ladies of the Members* will be furnished ladies' tickets, which will entitle them to the reduced fares granted to the members, and to participate in the festivities connected with the congress.

*Festivities.*—Besides the receptions which the kind and hospitable citizens of Rome will offer to the members, the Italian colleagues will endeavor to return to the best of their power the kindness they experienced during their stay abroad. On some evening yet to be decided the members of the different sections will join at a dinner which will be given at one of the first hotels of Rome. The Italian physicians have formed special committees to show the most hearty and kindly hospitality toward the foreign colleagues.

*International Exhibition of Medicine and Hygiene.*—On the occasion of the Eleventh International Medical Congress, an Exhibition of Medicine and Hygiene will be inaugurated in Rome which will gather all that may practically interest physicians and specialists. A special committee has already insured the co-operation of all the most important manufacturers of the world.

*Hotels.*—All the first-class and second-class hotels of the Italian capital will afford to the members, during their stay, all desirable comforts.

*The American National Committee*, consisting of Dr. W. T. Briggs, Nashville, Tenn.; Dr. H. P. Bowditch, Boston; Dr. S. C. Busey, Washington; Dr. C. Cushing, San Francisco; Dr. N. S. Davis, Chicago; Norman W. Kingsley, D. D. C., New York; Dr. W. Osler, Baltimore; Dr. W. Pepper, Philadelphia; Dr. F. Peyre Porcher, Charleston, S. C.; Dr. Charles A. L. Reed, Cincinnati; Dr. D. B. St. John Roosa, New York; Dr. A. J. C. Skene, Brooklyn; Dr. James Stewart, Montreal; and Dr. A. Jacobi (chairman), 110 West Thirty-fourth Street, New York, draws the attention of gentlemen who intend to participate in the congress to the following: It is the earnest wish of the central committee to receive applications at an early date. The admission fee of five dollars may be sent to the treasurer, Professor L. Pagliani, Rome, Italy; in return, the ticket of membership will be forwarded. It is requested that a visiting card, containing name and address, be sent with each application, to facilitate exact spelling. The chairman offers his services to whosoever will direct him to forward both application and fee. Attention is also directed to Article 11 of the Regulations, according to which papers must be announced at headquarters on or before June 30th, and abstracts be received on or before the 31st of July.

*The Pan-American Medical Congress.*—*The Section in Anatomy* has been organized with the following officers: Executive president, Dr. John B. Roberts, 1627 Walnut Street, Philadelphia; secretaries, Dr. D. S. Lamb (English-speaking), 800 Tenth Street, N. W., Washington; Dr. A. M. Fernandez (Spanish-speaking), 194 West Tenth Street, New York. The section will be devoted to the study of human and comparative anatomy and of biology as departments of natural science as well as in their relations to practical medicine and surgery. The regulations applying to papers and discussions which have been adopted by the executive committee of the congress are as follows: Contributors are required to forward abstracts of their papers, not to exceed six hundred words each, to be in the hands of the secretary-general not later than the 10th of July, 1893. These abstracts shall be translated into English, French, Spanish, and Portuguese, and shall be published in advance of the meeting for the convenience of the congress, and no paper shall be placed upon the programme which has not been thus presented by abstract. Abstracts will be translated by the literary bureau of the congress at the request of contributors, and should be forwarded through the secretaries of sections. Papers to be presented to sections must not consume more than twenty minutes each in reading, and when of greater length must be read by abstract not exceeding twenty minutes in length. Papers read by abstract may be printed in full in the transactions, subject to approval by the editorial committee. Papers and discussions will be printed in the language in which they may be presented. All papers read in the sections shall be surrendered to the secretaries of the sections; all addresses read in the general session shall be surrendered to the secretary-general as soon as read; and all discussions shall be at once reduced to writing by the participants.

*The Section in Physiology* has the following officers: Honorary presidents, Dr. José M. Bandera, City of Mexico; Dr. James Blake, San Francisco; Dr. R. H. Chittenden, New Haven; Dr. Austin Flint, New York; Dr. C. Heinemann, Vera Cruz, Mexico; Dr. Joseph Jones, New Orleans; Dr. J. B. de Lacerda, Rio de Janeiro; Dr. H. N. Martin, Baltimore; Dr. Wesley Mills, Montreal, Canada; Dr. S. Weir Mitchell, Philadelphia; Dr. E. T. Reichert, Philadelphia; Dr. Antonio Pérez Roca, Lima, Peru; Dr. Magín Sagarra, Santiago de Cuba; Dr. Carlos Schönlén, Santiago, Chile; executive president, Dr. Isaac Ott, Easton, Pa.; secretaries, Dr. A. P. Brubaker (English-speaking), Jefferson Medical College, Philadelphia; Dr. W. A. Thom (Spanish-speaking), 128 Main Street, Norfolk, Va.; Dr. Señorans [Defensa 293], Buenos Aires, Argentine Republic; Dr. Enrique Hertzo, La Paz, Bolivia; Dr. J. Paulo de Carvalho, Rio de Janeiro, United States of Brazil; Dr. A. B. MacAllum, Toronto, Canada; Dr. Julio San Martín [Dragones 94], Havana, Cuba; Dr. Antonio Várgas Vega [Calle 10, Núm. 305], Bogotá, Colombia; Dr. Carlos Durán, San José, Costa Rica; Dr. Carlos Padilla, Guatemala, Guatemala; Dr. F. L. Miner, Honolulu, Hawaii; Dr. Esteban Ferrán, Tegucigalpa, Honduras; Dr. Manuel Toussaint [San José de Gracia 12], Mexico, Mexico; Dr. Guerra, Rivas, Nicaragua; Dr. Juan Morelli (hijo) [Arapey 192], Montevideo, Uruguay; Dr. Ramón Porra Picón, Mérida, Venezuela; advisory council, Dr. W. H. Howell

Boston; Dr. C. F. Hodge, Worcester, Mass.; Dr. W. G. Thomson, New York; Dr. F. S. Lee, New York; Dr. G. T. Kemp, Brooklyn; Dr. John Marshall, Philadelphia; Dr. W. S. Carter, Philadelphia; Dr. J. W. Warren, Bryn Mawr, Pa.; Dr. R. M. Smith, Philadelphia; Dr. F. T. Mall, Chicago; Dr. Jacques Loeb, Chicago; Dr. J. J. Abel, Ann Arbor, Mich.; Dr. Henry Sewall, Denver, Col.

The *Section in Ophthalmology* has the following officers: Executive president, Dr. Julian J. Chisholm, of Baltimore; honorary presidents, Dr. Herman Knapp, New York; Dr. Eugene Smith, Detroit; Dr. Stephen C. Ayres, Cincinnati; Dr. J. L. Thompson, Indianapolis; Dr. X. C. Scott, Cleveland; Dr. Abner Calhoun, Atlanta; Dr. Herbert Harlan, Baltimore; Dr. Charles W. Kollock, Charleston; Dr. Stephen C. Richey, Washington; Dr. José Ramos, Mexico; Dr. G. C. Savage, Nashville; Dr. J. E. Minney, Topeka; Dr. W. H. Carmalt, New Haven; Dr. B. J. Baldwin, Montgomery; Dr. Aurelio Alarco, Lima, Peru; Dr. Charles Finley, Havana, Cuba; Dr. Hasket Derby, Boston; Dr. J. C. Kipp, Newark; Dr. Dudley S. Reynolds, Louisville; Dr. Maximo Cienfuegos, Santiago; Dr. F. C. Hotz, Chicago; Dr. Charles E. Michel, St. Louis; Dr. Samuel D. Risley, Philadelphia; Dr. R. H. Lewis, Raleigh; Dr. T. E. Murrell, Little Rock; Dr. E. C. Rivers, Denver; Dr. C. M. Shields, Richmond; Dr. J. F. Fulton, St. Paul; secretaries, Dr. George M. Gould, Philadelphia (English-speaking), Dr. J. Harris Pierpont, Pensacola (Spanish-speaking); advisory council, Dr. Adolph Alt, St. Louis; Dr. L. Webster Fox, Philadelphia; Dr. George T. Stevens, New York; Dr. Edward Jackson, Philadelphia; Dr. B. A. Randall, Philadelphia; Dr. H. V. Wurdeman, Milwaukee; Dr. R. Sattler, Cincinnati; Dr. L. Connor, Detroit; Dr. Hiram Woods, Baltimore; Dr. R. L. Randolph, Baltimore; Dr. J. A. White, Richmond; Dr. S. M. Burnett, Washington; Dr. A. R. Baxter, Cleveland; Dr. J. P. Parker, Kansas City; Dr. J. H. Thompson, Kansas City.

The *Section in Military Medicine and Surgery* has the following members of the advisory council: Colonel Louis Read, M. D., surgeon-general, N. G., Pa.; Newton L. Bates, M. D., medical director, U. S. navy; J. R. Tryon, M. D., medical inspector, U. S. navy; Lieutenant-Colonel Eustathius Chancellor, M. D., medical director, N. G., Mo.; Brevet Lieutenant-Colonel A. A. Woodhull, M. D., surgeon, U. S. army; Major Joseph H. Corson, M. D., surgeon, U. S. army; Major George Henderson, M. D., medical director, N. G., D. C.; C. N. Hogland, M. D., ex-surgeon, Ohio Vols.; Bedford Brown, M. D., ex-surgeon, C. S. army; H. C. Goodman, M. D., ex-surgeon, U. S. Vols.; Melancthon Storrs, M. D., ex-surgeon, Conn. Vols.; O. D. Ball, M. D., pension ex-surgeon, Albany; Captain H. O. Perley, M. D., assistant surgeon, U. S. army. George M. Sternberg, deputy surgeon-general, U. S. army (president).

**National Quarantine Regulations.**—The late Secretary of the Treasury is reported to have issued the following regulations on the 3d inst.:

Every vessel, passenger or freight, bound for the United States must carry a prescribed bill of health, given either by the United States Consul or medical officer detailed by the President at the port of departure. In case the vessel sails from an infected port an inspection must precede the granting of the bill of health, and an inspection is required in the case of every passenger vessel sailing from any port in Europe, Asia, Africa, Central or South America, Mexico, and the West Indies, whether said port is infected or not. The inspection must be made within six hours immediately preceding the departure of the vessel, according to methods prescribed. Should disinfection be declared to be necessary, it is made compulsory upon the vessel owners to have it done under direction of the inspector.

With regard to cargo of vessels, the consul at port of departure is required to have knowledge of its origin and to have it disinfected if necessary. During the prevalence of an epidemic rags and similar articles are not to be shipped at all, nor within thirty days after the port has been officially declared to be free from the epidemic. Crews of vessels while at anchor in an infected port are required to remain on board. New members, before being allowed on board, must be examined by the inspector, and prove to his satisfaction that they have not within ten days previous been exposed to any quarantinable disease.

Passengers are divided into two classes—cabin and steerage. Each cabin passenger must produce satisfactory evidence as to his place of abode for four days previous to embarkation, and if he has been ex-

posed to contagion will be detained for a term to be fixed by the inspector and his baggage disinfected. Steerage passengers shipping from an infected port are to be detained five days under medical observation in specially provided quarters.

They are to be bathed at the beginning of the five days' term and provided with disinfected clothing. If cholera should break out among them while under observation, none of them will be allowed to embark for the United States until at least seven days have elapsed since the conclusion of the last case.

The same provisions which are made for passengers and crews in cholera-infected ports apply to ports in which plague, yellow fever, typhus, or small-pox prevail in an epidemic form.

Passengers, crews, cargoes, baggage at non-infected ports, but coming from infected localities, are made subject to the same restrictions as are enforced at an infected port.

A vessel arriving at any United States port with cases of contagion on board shall be detained for a period ranging from five days to twenty days, the latter only where typhus fever prevails.

**Codes of Ethics.**—Under the heading of Questions of the Code; Advertising, the January number of the *Alienist and Neurologist* says editorially:

"While it is undoubtedly, as the code enjoins, derogatory to professional dignity to resort to private cards or public handbills, inviting public attention to special skill in the treatment of particular diseases, it is certainly an unwise policy, and at variance with the dictates of common sense, to so construe the code, or to amend it so as to debar regular physicians from decently, delicately, and properly advertising their calling to the public.

"When the code is revised it should be explicit on this subject, and prescribe what form of public announcement should be deemed proper, and denounce in plain terms what should be considered indelicate and unprofessional advertising, but it should not commit the folly of saying doctors may go into business, but must not make themselves known.

"While the method of the quacks should not be countenanced in the code, there is no good reason why the qualifications of physicians should not be made public in a decent, delicate way. On the contrary, there is the best of reasons, based on the demand of humanity and personal and professional interest—individual and collective—why a decent form of advertising should be countenanced and encouraged. The best qualified physicians owe to humanity a debt to make themselves and their qualifications to alleviate suffering known. Humanity demands this.

"Why should charlatany be allowed to have the ear of the public and not scientific medicine? Can not regular medicine set an example of decent, delicate, modest advertising, consistent with professional dignity and honor, which would enable a discriminating public to see the true from the false, and thus discountenance the shameful quackery that now afflicts the people?

"Why should a reputable young physician spend years of study, and through toil receive professional honors, and then be enjoined to conceal his special fitness from a suffering public in need of his skill? Of what use are honors and experience if they may not be made known? What is there indelicate or unprofessional in a young man publicly announcing his *alma mater*, more than there is in his *alma mater* making public announcement of his graduation? What harm is there in his telling where and under what masters he studied, or in what hospital he has served, or what his preferences in practice are?

"Common sense and the general public judgment would approve of a policy that permitted the public to know more of its physicians before being compelled to first try them to find them out.

"A wise and generous policy in the amended code toward the young physician, allowing him to make known, in a delicate and legitimate way, his fitness to practice—such as his hospital experience, place of graduation, location, and special line of preferred practice—would enlighten the public, encourage ambition in students to seek medical college and hospital distinction before beginning to practice, and shame quackery and its votaries by the real sensible modesty of true merit; at the same time the public would know where to find its best young doctors.

"A legitimate and delicate form of public advertising approved by the revised code would diminish the numberless disreputable devices to which doctors now resort for success. The painfully pious doctor, the church doctor, the club doctor, the insurance-society doctor, the cheap insurance company and railroad doctor, the hotel doctor, the free dispensary and free clinic doctor with college attachment, the free hospital doctor, the proprietary and mineral water certificate doctor, the newspaper doctor, the charity and semi-charity doctor of every kind, and the small college professor, would be less numerous than now. The little medical editor with his pop-gun boom, and the small specialist would become scarcer than now under honest, decent, legitimate, square code-tolerated advertising. Much of the shameful trickery of the trade to secure practice would then disappear from our ranks.

"But, best of all, the jealous and unseemly rivalries now existing in our profession would be reduced to almost nothing.

"Let the new provision in this subject be something like this: While it is derogatory to professional dignity to resort to the ordinary fulsome methods of the quacks, it shall not be considered unprofessional for a regular physician to publicly announce, in a modest way, his calling, the place of his graduation, his preceptor, his hospital experience, or his special line of practice, on his card or through the press, but it shall be deemed highly unprofessional, as it is in the highest degree indelicate, to proclaim extraordinary skill through public handbills, private cards, or the public press, or to resort to the ordinary newspaper devices of quacks, such as 'advice free, no cure no pay, charge for medicine only,' or to make any promises that are not of probable fulfillment, or to resort to any of the common trade methods of success, such as 'runners' and commissions on patients procured, etc.

"What we should encourage is honesty in the dealing of doctors with the public. Square, truthful, common-sense, delicate, decent method of making our meritorious young doctors, so that the true dignity of the profession is not degraded, the public may know who are the really best physicians, what they can really do, and where they may be found, and they should be enabled to get all proper knowledge of good physicians, and learn through the public press to seek the true physician rather than the quack. Scientific medicine gives quackery too great advantage by failing to provide a proper means by which it may reach where even quackery does—through the public press.

"The press is too great a lever to be given over entirely to the empirics. There is no wisdom in the professional policy that enjoins this, and, as a matter of fact, the code does not enjoin this. It only says it is derogatory to professional dignity to publish cards or handbills calling attention to special skill in particular diseases. It justly condemns such methods as the ordinary devices of quacks.

"It would be wiser, even if the code enjoined for all competent physicians to properly make themselves known to the public by writing, by delicately worded cards, etc., than to give this field over to the quacks. The disintegration of practice into special work, the reliance of the people on the public press, and the demands of the present age differ essentially from those of the past when the code was framed.

"We stand for and by the code, but we ask an enlightened and timely revision, and that no dead-letter provisions be allowed to remain in it."

The *Medical News* for February 25th, commenting on the recent abrogation of the Medical Society of the State of New York's code, says:

"Whether or not this action be politic and judicious and ethical remains to be tested by the logic of events. It is a sort of *j'y suis, j'y reste* argument, about which the logic of controversy is of little use. There has certainly been too much controversy already. Let us quit arguing and try to unite in harmony. It is certainly a fact of profound significance for the American medical profession, and one that it behooves us all to consider most carefully and seriously."

**The Position of Hypnotism in Therapeutics.**—This is the title of the sixth of Mr. Ernest Hart's articles on The New Mesmerism, published in the *British Medical Journal*. Mr. Hart says:

"The final question of the clinical physician and the medical practitioner is the practical demand for the definition of the position of hypnotism in its relation to therapeutics. I may, I think, take it as proved beyond all reasonable doubt that the hypnotic condition is a

real and admitted clinical fact. Setting aside all the impostures, follies, and errors which have gathered around it—brushing away the fantastic halo of clairvoyance, telepathic visual communication, transference of thought or sensation across space, or by contact and externalization of sensation, as pure fallacies, fancies, or frauds—we have still beneath them the solid basis of the subjective condition of artificially induced sleep and heightened suggestibility. What use, if any, can be made of the power of suggestion under these circumstances as a curative agent? In reply to this question I will adduce chiefly the evidence of Dr. Luys, Dr. Charcot, Dr. Babinski, and M. Ballet, analyzing the results of long years of clinical experiment on a vast number of subjects in Paris and in Nancy. M. Babinski discusses the subject very carefully in a lecture which he gave at the Salpêtrière on June 23, 1891.\* He opens his lecture very frankly with the statement following: 'At the Salpêtrière, without at all objecting to hypnotism as a weapon of the therapeutic arsenal, it is considered that its indications are limited, and that this mode of cure can hardly be applied with success except in hysteria.' 'In any case it may,' he considers, 'be affirmed' (page 23) 'that the greater part of the effects which have been cured by this method arise from and belong to that neurosis.' 'Hypnotism,' he further says, 'may, it must be admitted, serve in the treatment of hysterical manifestations, but it must be acknowledged also that even in affections of this class hypnotic practice does not give brilliant results.'

"He groups hysterics from the therapeutic point of view into two distinct classes. To the first belong the great number of hysterical persons who are not capable of being hypnotized, however much trouble is taken with them. Some of these patients are no doubt subject to the very old-fashioned influence of suggestion in the waking state. Such people have always been susceptible to cure by bread pills and distilled water, and by the 'rapid' influence of electrotherapy, hydrotherapy, etc. In the second class are the hysterics—persons who can be hypnotized—and these present numerous varieties. Some of them, especially those subject to hysterical neuralgia and cutaneous hyperaesthesia, are very rebellious to suggestion, and in others only a partial and very inadequate result is obtained. In some cases of hysterical contraction of the limbs suggestion gives relief, but it has to be renewed from day to day, sometimes five or six times a day, and is very liable to relapse. In a very few cases a gradual and definite amelioration is obtained, as in a case of hysterical muscular contraction and coxalgia of which Dr. Babinski is able to quote one case. 'Finally,' he asks himself after many years of study and experience as *chef de clinique des maladies nerveuses* and as hospital physician, who has constantly observed the cases at the Salpêtrière, 'does the field of action of hypnotism pass beyond the domain of hysteria?' His final conclusion, which he italicizes at the close of his address, is that it is justifiable to say, and he is authorized to conclude, that outside of hysteria there does not exist a single affection capable of being notably modified by hypnotism, or at least that the contrary is not proved, for the observations published with that object are far from being demonstrative. Of course, the opposite thesis is maintained by M. Bernheim, but after the close analysis to which Dr. Babinski subjects the cases published by Dr. Bernheim in his two books on psychotherapy and suggestion, there remains very little which can be accepted as substantial.

"Besides bodily diseases, some alienist physicians have alleged that mental maladies may be cured by hypnotism. Here, again, we may take the results of competent French alienists who have given a practical trial to this method. M. Magnan authorizes the statement that experiments made on the treatment of insanity by hypnotism at the Bureau de l'Admission for three years have given no appreciable result, while M. Bernheim himself recognizes that the domain of mental alienation is the most rebellious to suggestion. Dr. Forel, of Zurich, is not less positive in his conclusions. He says: 'Insane ideas have

\* *Hypnotisme et hystérie, du rôle de l'hypnotisme en thérapeutique*. Leçon faite à la Salpêtrière le 23 Juin, 1891, par J. Babinski, médecin des hôpitaux, ancien chef de clinique des maladies nerveuses à la Faculté. Paris: G. Masson, 1891.

† *Premier congrès international de l'hypnotisme*, p. 156. Paris: Octave Doyn, 1890.



never been modified in any patient. Even those whom I succeeded in hypnotizing, in rendering anæsthesia amnesic, whom I made realize post-hypnotic suggestions, refused to accept any suggestion opposed to their insane ideas. I never succeeded in influencing the course of true melancholia (I do not speak of hysteric melancholia) by suggestion; at most, I was able sometimes to produce sleep, and in one case to hasten convalescence.\* M. Briand, chief physician of the Asile de Villejuif, said on the same occasion: 'I have many times attempted to send to sleep the insane and delirious who presented no hysteric taint, but I was never fortunate enough to obtain any result.'† If this is so in France, the results are likely to be at least as negative in Great Britain, where the population is undoubtedly much less susceptible to suggestion.

"*Hypnotic Suggestion before the Law.*—It has been alleged that suggestion and somnambulism may have considerable value in unmasking certain crimes to which the tribunals of justice have not hitherto been able to attribute their true character. This thesis has been especially maintained by M. Liégeois\* and by M. A. Voisin,‡ but with all his good will and with all his research M. Liégeois has not been able to bring forward one single example in which suggestion has been shown to play any part in the production of a crime brought before a court of law. I refer those who are interested to the excellent analysis of the work of M. Liégeois by Gilbert Ballet.†

"There is only one case on record in which a distinct declaration has been made by a medical man of evidence that crime has been committed by a hypnotized person under the influence of suggestion. It is the case which M. Voisin records in the *Revue de l'hypnotisme* here cited, in which, as he reports, a woman accomplished numerous thefts at a great shop in a state of automatism and under suggestion which had been imposed upon her when hypnotized. M. Voisin states that he demonstrated the complete irresponsibility of this woman, who was left at liberty, while the three actual authors of the crime were punished. Dr. Voisin referred also to this case at the Bournemouth meeting of the British Medical Association. If it be fully verified it may claim to rank as a case in which the theory of post-hypnotic suggestion has been of use for justice. It would be the only case thus far noted. But where are the legal documents of this case, the magistrates' report, and the depositions? Until we have them before us we can decide nothing as to its authority. They have been pressingly asked for, but I am not aware that they have been produced. That hypnotism may and does lead to crime in respect to the abuse by hypnotic operators of the person of the hypnotized subject is beyond question, and possibly the cases may be more numerous than published records can prove, but to the question which we are now putting, of the influence of suggestion in producing crime as the automatic act of the subject, or as the result of deferred suggestion, there is no affirmative answer forthcoming upon evidence adduced. Still less is there any proof that the doctrine of hypnotic suggestion has in any case been of value for the purposes of justice.

"Finally I pass to the domain of surgery and obstetrics. Here we are on more positive ground, and I shall quote the words of Dr. Luys\*—always disposed to give the largest interpretation to the evidence of the usefulness of hypnotism—as to its relative inutility in these positive departments of medical and surgical art.

"*Surgical Application.*—'At the first appearance of hypnotism, when Braid had shown that hypnotized subjects are insensitive to external stimuli, surgeons conceived the idea of using this method for the performance of certain operations; in fact, a certain number among them had the opportunity of testing it with a certain amount of advantage; but since the wonderful discovery of chloroform these

attempts, so far as concerns surgical anæsthesia, have been justly abandoned.

"'At the present time the application of hypnotism to surgical therapeutics is of absolutely no account, since they concern only the limited number of persons—namely, the class of hypnotizable subjects. It must, however, be said that if this class of subjects should, by the employment of new methods, become more numerous, it is possible that in certain cases one might practice fascination, and thus obtain an artificial anæsthesia, the duration of which might be prolonged without any ill effects. In the present state of things, in our collection of hypnotic subjects, when a small operation is to be done upon them—an abscess to be opened, a foreign body to be extracted, one or more teeth to be drawn—I do not hesitate to hypnotize the subject and to hand him over to the surgeon. It happens to me frequently enough to have a certain number of subjects with teeth to be drawn. I place them in the condition of lucid somnambulism, I address myself to the dentists of the Charité, who examine the mouth at leisure, and perform extraction of the diseased teeth; while the subject, insensible all through, on waking has no recollection of the operation which he has undergone, and is quite astonished to find his extracted teeth in his hand.'

"*Application of Hypnotism in the Domain of Obstetrics.*—Dr. Luys writes further: 'The practice of hypnotism as applied to the art of midwifery has not yet yielded very satisfactory results. You may read on this subject a very interesting work of Dr. Auvard, who sums up in a very conscientious way all that we know about this question. I have only had one sole fact of this kind to record, and it does not seem of a nature to encourage hypnotic experiments in this special province. Last year I had in my wards a young hypnotic woman whom I had kept till the last day of her pregnancy in order to give her the benefit of lathargic anæsthesia at the time of her confinement. When the pains came on she was hypnotized and placed in a condition of lathargy, but this proved perfectly useless, for the intensity of the labor pains was such that they brought about the natural awakening of the patient, and we were obliged to have recourse to chloroform to finish the delivery.'

"To sum up, I may venture to quote my own conclusions as stated recently in the *Nineteenth Century*: 'To me the so-called cures by hypnotism seem to rank in precisely the same class as those of the faith-curer.'

"The hypnotic *endormeur* is very well able to explain the miracles of faith-cure by the light of his own experience. They result, as he explains accurately, from the reaction of mind on body, the effects of imagination, of self-suggestion, or of suggestion from without. Those who benefit by them are especially the fervent and the enthusiastic, the vividly imaginative, the mentally dependent, and, above all, the hysterical—male or female. But clearly the faith-curer may retort upon the hypnotizer that they are brothers in their therapeutic results, if not in their faith and philosophy. The one can work about the same percentage of cures as the other, and no more; and the intervening apparatus, whether of magnets, mirrors, or of grottoes, only serve to affect the imagination, and to supply the 'external stimulus' which is necessary.

"To this category belong also the long series of thousands of asserted cures of people who wear what they are pleased to call magnetic belts, or who used to wear magnetic rings, who were cured by the Perkins tractors whether of wood or of iron—such are the prey of the quacks of all ages and countries.

"One essential fact is, however, I conceive, that no new faculty was ever yet developed in any of these hypnotics. The frauds of clairvoyance, of spirit perceptions, of gifts of language, of slate-writing, of 'spirit-writing,' of far-sight, of 'communication across space,' of 'transfer of mental impressions,' of the development of any new sense or ghost of a new sense, remain, now as ever, for the most part demonstrable frauds or perhaps in a few cases self-deceptions. At the Salpêtrière, in Nancy, wherever the facts have been impartially and critically examined, this has been the result. It results once more now from my test of the subjects of the Charité and the École Polytechnique. It will, I suppose, be too much to expect that we shall hear no more of the 'New Mesmerism,' but it will be easy for any one thus experimentally to reduce it to its true dimensions.

"Finally, as to the practical question, which has perhaps a greater interest for the sociologist and the physician than any which have suggested themselves up to this point. Since the hypnotist faith-curer of

\* *De la suggestion et du somnambulisme dans leurs rapports avec la jurisprudence et la médecine légale.* Paris, 1889. *Comptes rendus du Congrès de l'hypnotisme*, 1889.

† *Revue de l'hypnotisme* de Juin, 1891.

‡ *Les suggestions hypnotiques au point de vue médico-légal.* Par Gilbert Ballet, professeur agrégé à la Faculté de médecine, médecin de l'hôpital, St. Antoine. Paris: G. Masson.

\* *Applications thérapeutiques de l'hypnotisme.* Par le Dr. J. Luys. Paris: Imprimerie F. Leve, 17, Rue Casette, 1889.

the hospital ward and the priestly faith-curer of the grotto are in truth utilizing the same human elements and employing cognate resources, although masked by a different outward garb, we may ask ourselves which can approximate to the greater successes and which does the least harm.

"So far as I can see, the balance is in favor of the faith-curer of the chapel and the grotto. The results at least are proportionately as numerous, and they are more rapid. Numerically there are, I incline to think, more faith-cures at Lourdes than there are 'suggestion-cures' in the Salpêtrière or the Charité. So far as hypnotism is good for anything as a curative agent, its sphere is as we have seen limited, by Charcot, Féré, Babinski, and all the most trustworthy medical observers of Paris, to the relief of functional disorder and symptoms in hysterical patients. The Nancy school put their pretensions higher; but any one who will analyze for himself, or who will study Babinski's able analysis of the Nancy reputed cases of cure, will easily satisfy himself that such claims are not valid. As to the use of 'suggestion' as an anæsthetic substitute of chloroform for operation purposes, that 'suggestion' dates back now beyond the ages of Esdaile and of Eliottson. It has been given up and fallen into disuse because of its unreliability and limited application. It is now sagely proposed to use hypnotism for 'tooth-drawing,' for the treatment of drunks, and of school children. The proposition is self-condemned. To enable a dentist to draw a tooth painlessly, the average man or woman is, by a series of sittings, to be reduced to the state of a trained automaton; but happily only a very small proportion can be. The criminal courts have seen enough of hypnotic dentists. As to the 'suggestion' cure of drunks or the 'suggestion' treatment of backward or naughty children, systematic and intelligent suggestion is what every clergyman, every doctor, and every schoolmaster tries to carry out in such cases and often does successfully—and in a better form than the degrading shape of hypnotism. Moreover, for drunkenness it is, so far as my inquiries go, a disappointing failure.

"If a striking effect is to be produced by an apparatus destined powerfully to affect the imagination, the faith-curer of the grotto has this advantage over the *endormeur* of the platform or the hospital. He does not intrude his own personality and train his patient to subject his mental ego to that of his 'operator.' The 'mesmerizer' seeks to dominate his subject; he weakens the will power, which it is desirable to strengthen. He aims at becoming the master of a slave. I do not need to emphasize further the dangers of this practice.

"The faith-curer of the grotto strengthens the weaker individuality. He plays upon the spring of self-suggestion. The patient is told to believe that he will be cured, to wish it fervently, and he shall be cured. So far as he is cured, he returns perhaps a better and a stronger man, and his cure is quite as real and likely to be quite as lasting as if he had become the puppet of a hypnotizer. The experiments of the Salpêtrière have served to enable us to analyze more clearly the nature of faith cures generally, and they have thrown a ray of light on a series of phenomena of human automatism never before studied so clearly or philosophically, but they have added practically little, if anything, to our curative resources. It is hardly to be set down to their discredit that they have incidentally favored the reign of the platform hypnotizer or the vagaries of the subjects at La Charité: that is their misfortune rather than their fault, but it is a grave misfortune. But the intervention of authority might at the present, and I hope will, cut short the absurdities and put an end to some social mischiefs which have fastened on to them and hang to their skirts. Thus much as to the medical question. To the student of 'psychological phenomena' it is of great interest to note how successive functions may be separately abolished as the brain is partially set to sleep, and in what exaggerated forms the remaining activities may be brought upon the stage when restraining self-consciousness is stifled. The vulgar, too, may find an ignoble amusement in the antics of these drinkers of petroleum and vinegar, and of these seers of visions and in the semi-idiotic postures and proceedings of the hypnotized manikin, just as they do in a *fantochini* show or a puppet play. But against such philosophic satisfactions and vulgar amusements must be set the avowed and the unconfessed mischiefs. Who can doubt that these outbalance any good result which can be discerned?"

**The late Dr. William C. Stone.**—The Society of the Alumni of Bellevue Hospital has passed the following resolutions:

Whereas, it has pleased Almighty God to remove from his earthly sphere our worthy companion and professional brother, Dr. William C. Stone; therefore, be it

Resolved, that the members of the Society of the Alumni of Bellevue Hospital express their sincere sorrow for the untimely loss of their friend and member, who was removed in the fullness of young manhood. A man of unusually impressive and dignified presence, with a manner of mingled firmness and gentleness, he commanded the respect and won the confidence of all with whom he came in contact.

Resolved, also, that these expressions of profound sympathy be extended to his family.

{Signed.} { WILLIAM B. ANDERSON,  
MATTHEW D. FIELD,  
WILLIAM R. FRYOR,  
Committee.

**To Contributors and Correspondents.**—The attention of all who purpose *dealing as with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original communications" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specifically notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*







FIG. A.



FIG. B.

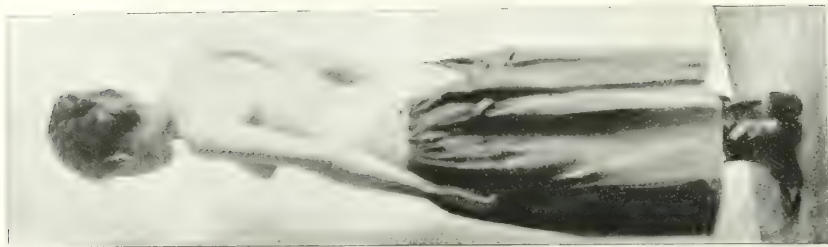


FIG. C.

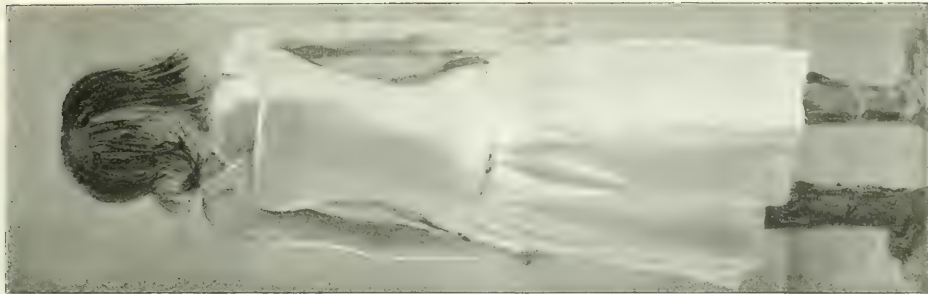


FIG. G.

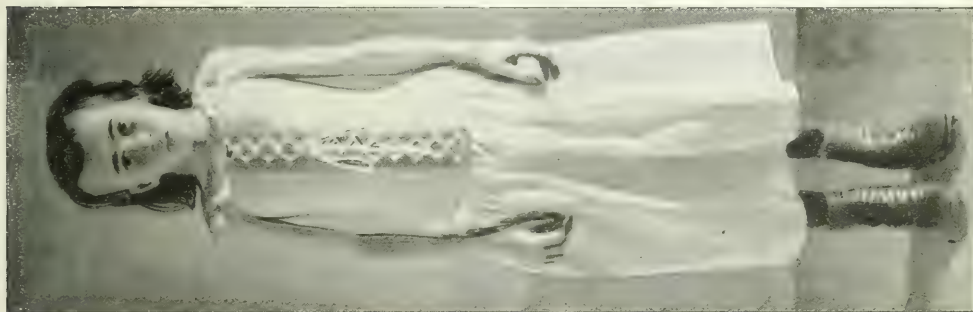


FIG. F.

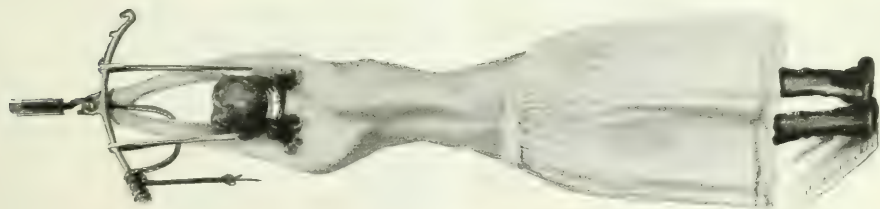


FIG. E.

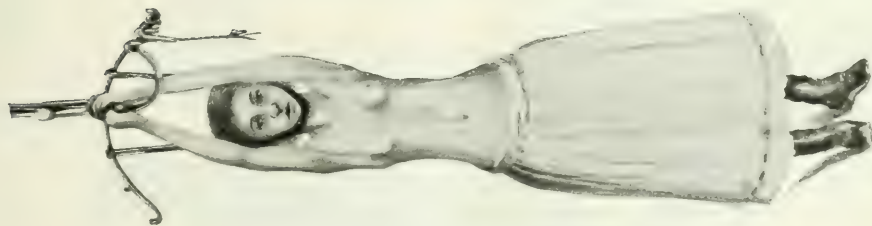


FIG. D.

Severe lateral curvature, showing effect of self-suspension and gain in height of  $\frac{1}{2}$  of an inch retained by plaster-of-Paris corset.



FIG. II.



FIG. I.

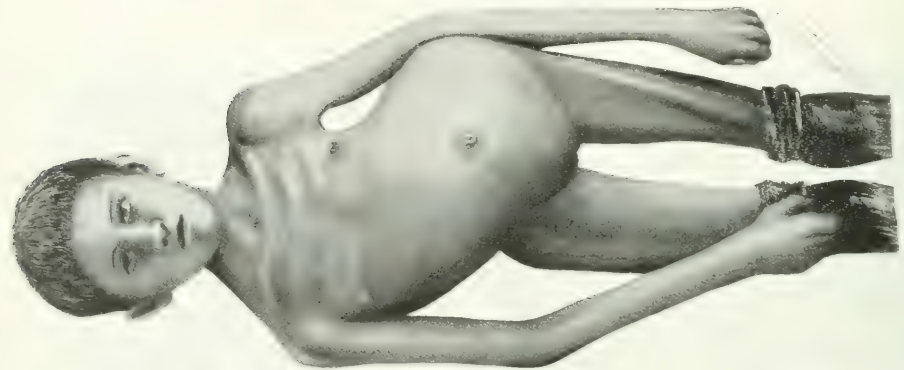


FIG. K.

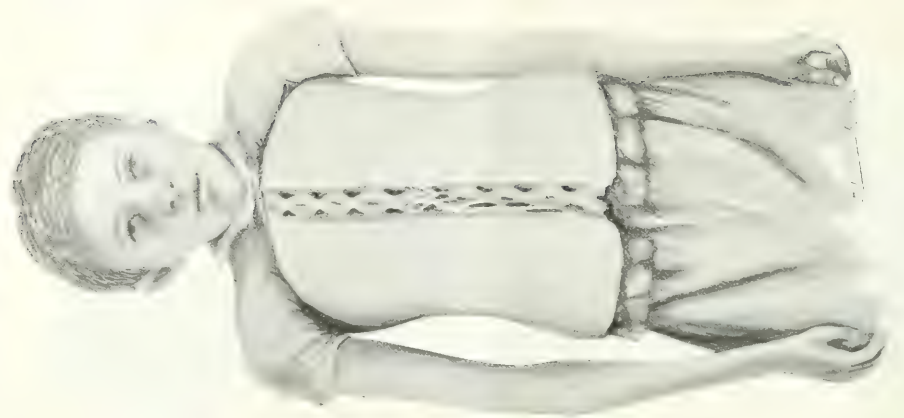


FIG. L.

Severe lateral curvature following infantile paralysis, showing gain in height of 32 inches from self-suspension retained by plaster-of-Paris corset.



Original Communications.

THE TREATMENT OF NEGLECTED CASES OF  
ROTARY LATERAL CURVATURE OF THE SPINE.\*

By REGINALD H. SAYRE, M. D.

THE correct treatment of lateral curvature consists in never allowing a case to get into the condition of those I shall describe to you this evening. After the patient has become as distorted as those whose pictures I shall show, it is impossible to remove the deformity, and your efforts will simply be directed toward making the patient as free from distress as possible, and in concealing instead of remedying the deformity.

These cases all begin in a very gradual way. One of the worst cases that I ever saw was that of a patient said by her physician to have lateral curvature at a time when the mother, so she wrote me, could not believe that anything was the matter with this child's spine; and yet, in years after, when the case came under my treatment, she was one of the most distorted cripples that I have ever seen.

When a mother brings a little child to you and asks if there is anything the matter with its spine, don't glance at it in a hurried kind of way and say, "There is nothing the matter with it; she will grow out of all that"; but strip the child to the hips and let her stand in her own natural, easy attitude, giving her time to accustom herself to her surroundings and allow her muscles to relax. In a few moments you will begin to notice a drooping of one shoulder, and that the space between the body and the arms is not the same on both sides. When first in the presence of the physician, these children very often hold themselves quite erect for a few moments; but after the first feeling of strangeness has worn off and their muscles grow a little fatigued, they will allow themselves to drop into the position which they habitually assume at home, and then, and not until then, is the slight deformity apparent.

Let the child then stand in front of you. Hold its legs between your knees, and, while its knees are straight, let it bend forward and try to touch the ground with its fingers. In this position the scapulæ fall forward and the contour of the back becomes visible (Fig. 1), and slight degrees of rotation are thus perceptible which escape observation while the child is in the upright posture, and this rotation is often more to be felt with the hand than to be observed by the eye. In a certain number of cases you will find that the starting point of a lateral curvature is a deformity of the last lumbar and first sacral vertebra, and that the spine cants constantly to the right or left at the lumbo-sacral junction.

At times the deformity is more apparent in front than in the back. You will notice a prominence of one hip, the flesh at times sinking in quite sharply above the iliac crest, although the deformity in the back is scarcely discernible.

Among the earliest evidences of rotation you will find

the inequality which almost always exists in the distance from the umbilicus to the two nipples. This is frequently to be observed before any marked change in the back has



FIG. 1

taken place. You will also usually find that the breast on the side of the convexity is smaller than that on the side of the concavity.

I have seen so many cases of bad lateral curvature, where the mothers tell me that they noticed an inequality in the two sides of the child when it was still young, but that, on consulting a physician, they were told that the child would "grow out of it," that I feel I can not too strongly impress upon you the necessity of observing these cases closely, the importance of taking measures to straighten these incipient curves, and of being sure that, if the child has a slight curve, it will not "grow out of it" as it grows older, but rather grow into it, and when she comes to puberty have so decided a change in the ribs and vertebrae that it will be impossible ever to wholly rectify the deformity.

The usual, generally received opinion that lateral curvature develops between the ages of twelve and sixteen is largely due to the fact that girls have their clothes fitted more accurately at this time, and that, in consequence, a curve that has been present for a number of years first becomes recognized—very possibly by the dressmaker—at this period; in addition to which, the increased bone growth which takes place at this age causes the deformity to progress much more rapidly in a few months than it may have done in the same number of preceding years. I believe that rickets is a much more prominent factor in the production of lateral curvature than is usually believed. We all recognize these marked cases of rickets where the bones of the entire skeleton are more or less deformed, but I feel

\* Read before the New York State Medical Association, November 15, 1892.

convinced that many of the lateral curvatures are due to a primary malnutrition which expresses itself in unequal growth of the bodies of the vertebrae, instead of finding its expression in the lower extremities, as is usually the case. The fact that these girls may be stout and well nourished at the time they come to you for treatment does not invalidate this statement, as, after the active period of rickets has passed by, the subject may develop into a robust, healthy individual, simply bearing marks of his earlier disease, and it is a frequent occurrence to see stout, healthy men with aggravated bowlegs and other deformities due to rickets.

In other cases anterior poliomyelitis lays the starting point for lateral curvature. I do not mean those cases where there is a general involvement of the muscles which passes by, leaving one side paralyzed, but those milder cases in which the deeper muscles of the spine are involved, possibly to only a slight extent, and so escape our observation, while yet establishing a want of equilibrium in the muscular supports of the spine sufficient to determine a lateral curvature, and one which will be most resistant to treatment.

In some of the cases I shall describe this evening these conditions have been present, and in others the case has been consecutive to malformation of the ribs, to pleurisy with adhesions, and to other complications which we do not find in the true "idiopathic lateral curvature," so called.

As I have said before, the most effective treatment for lateral curvature consists in preventing it, as, after rotation with marked bone change has taken place, it is impossible by any system of treatment ever to restore perfect symmetry; but even in these badly distorted cases, although we can not restore symmetry, we can render the patients vastly more comfortable and, to a certain extent, reduce their deformity.\*

One of the greatest factors in causing rotary lateral curvature of the spine after the equilibrium between the muscles of the trunk has been destroyed—that is, after the normal curves of the spinal column have been disturbed by some adventitious circumstance—is the superincumbent weight of the head and shoulders, and no one can see many cases of lateral curvature without being forcibly struck by the difference in the contour of the body in the erect and prone positions. A patient that looks very crooked while standing will often present a fairly symmetrical appearance while lying flat upon the face.

In this spine which I now show you, which is a model devised by Dr. Judson to illustrate the action of the spinal muscles in causing rotation of the vertebrae, you will perceive that when I press the button the spine takes this double curvature, like a letter S, accompanied by rotation of the vertebrae, one upon the other (Fig. 2), and you will notice that as long as I keep my hand pressed upon this button, and so represent the weight of the head and shoulders pressing the spine more and more out of the perpendicular, my efforts to correct the curves by lateral

pressure simply serve to change the long curves into a number of small ones, but that the spine is not made straight until I release the button and allow the two ends

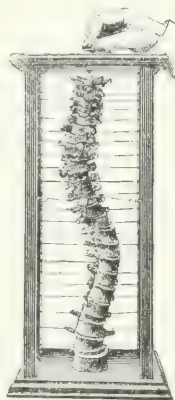


FIG. 2

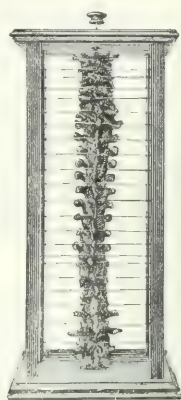


FIG. 3

of the S to recede from each other (Fig. 3), or, in other words, take the weight of the head and shoulders off the spine and allow it to become straight. As soon as I pull on this spine I straighten it.

In putting this principle into practical execution, you will find one of the greatest helps in eliminating the curves

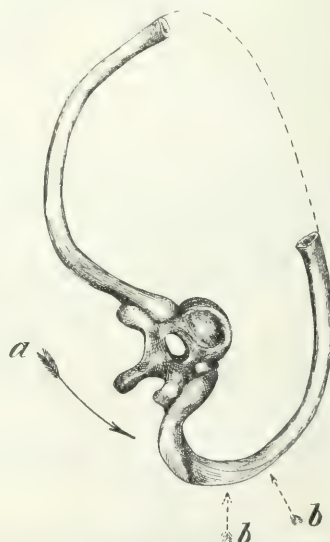


FIG. 4.—The arrow *a* shows the proper position for the application of force in reducing rotation of the vertebrae; the arrows *b b'* are the improper direction.

of the lateral curvature. The amount that one of these badly distorted spines will stretch while the patient partially suspends herself by means of a head-swing and pulley is surprising to one who has not measured it with a stand-

\* Some years ago I wrote more fully on the subject of prevention in the *New York Medical Journal*, November 17, 1888.

ard, and one of the most important problems that presents itself to us in the treatment of these cases is to find a suitable means of retaining the improved position gained by this self suspension.

In my own experience, nothing has been so satisfactory for this purpose as a plaster-of-Paris corset, and I find that cases which have been for many years wearing numerous different apparatus, applied by various gentlemen of large experience, tell me that they find the corset more comfortable than steel braces; and as I find that these cases increase in health and vigor as well as in height, as shown by actual measurement, under treatment by suspension and plaster-of-Paris corsets, I am convinced of the superiority of this method of treatment over other mechanical means, which simply serve to make lateral pressure against the ribs. In order to be effective in reducing the rotation of the spine, which in these cases is the most serious element in the production of deformity, vastly exceeding in importance the lateral deviation of the spine, it is necessary that the force be transmitted to the ribs in a direction away from the spinal column and not toward it, as you will see by the accompanying diagram (Fig. 4). If the force is directed as the arrow *a* points in Fig. 4, its tendency is to twist the vertebrae toward the straight position, whereas, if it impinges against the ribs, as shown by the arrows *b b*, it tends to curve the ribs more and more and rotate the vertebrae in the wrong direction; this second result is what practically takes place in all portable mechanical devices I have seen, aiming to push the ribs into a straight position. They do not practically carry out the principle which they are theoretically supposed to embody, and the force which is required to press these ribs into position is so great, if concentrated at a single point as in these mechanical devices, that pressure of sufficient force to cause any practical change is more than can be endured by the skin without damage, and I therefore prefer to straighten the spine as far as is practicable by partial self-suspension and manipulation, and then to apply a plaster-of-Paris corset, while the patient is twisted as far as possible into the correct position, and thus distribute the pressure equally over the whole trunk. In this way I find that I can support the weight of the body with much greater comfort to the patient and much more efficiently than by metallic straps and pads. I have often compared this to pulling out an accordion and then preventing the accordion from collapsing by means of plaster of Paris. It has been objected to this principle that it practically does not keep the accordion from collapsing, and I have been very much interested in measuring a number of extremely bad cases of lateral curvature before treatment and after the patients were supported in the plaster-of-Paris jacket.

CASE I.—E. O., aged fourteen, whose pictures I now pass around, is a very striking example of improvement.

When first seen she was four feet eight inches and an eighth high. A plumb line dropped from the chin went outside of the

right foot in front, and behind a line from the nape of the neck passed an inch to the left of the inner border of the left scapula. In front the left nipple lay to the right of the plumb line dropped from the chin. After one month's exercise she measured four feet nine inches and a quarter in her corset, a gain of an inch and

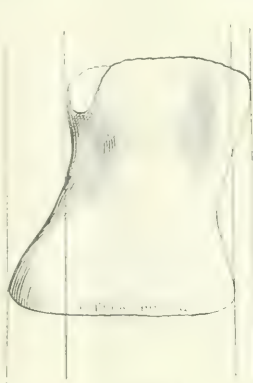


FIG. 5.



FIG. 6.

an eighth in a month. In three months' time she measured without the corset four feet nine inches and a quarter, and with the corset four feet ten inches and an eighth, being an increase in height in the corset of two inches, made by suspension and kept by the corset. I here show you the first corset made for this patient (Fig. 5) and also her sixth corset (Fig. 6), which illustrate clearly the change made in her shape.

CASE II.—N. H., aged fourteen, on October 3, 1891, measured four feet six inches and three quarters; after suspension, four feet seven inches and three eighths. This gain in height from the first suspension was never entirely lost, as on the 5th of October she measured, before stretching, four feet seven inches and an eighth; after stretching, four feet seven inches and a half. On October 7th she measured, after stretching, four feet seven inches and five eighths. On October 12th in her jacket she measured four feet seven inches and seven eighths. On October 23d a new jacket was applied, and in that she measured four feet eight inches, being a gain in less than a month of an inch and a quarter. This patient has one of the most distorted lateral curvatures I have ever seen. The deformity was congenital, and may possibly have been produced at birth, as it was a transverse presentation. When the child was six years of age she had pneumonia, followed by empyema on the right side. An incision was made between the ribs on the right side and the pus evacuated. There seems to be an absence of ribs on the right side. The lower ribs project down below the crest of the ilium, and between them and the upper ribs is a V-shaped gap, through which the liver can be distinctly felt. It is possible that instead of there being an absence of ribs on this side, they are so crowded together as to give the impression that the full number is not present. The mother thinks that these ribs were torn apart at the birth of the child.

CASE III.—C. M., aged fifteen, September 24, 1891. Height, five feet one inch and an eighth.

October 15th.—Height, five feet one inch and seven eighths. Gain in three weeks, three quarters of an inch.

CASE IV.—E. N., aged fourteen, July 7, 1891. Height, four feet eight inches.

July 20th.—Height, four feet nine inches and a half. In-



crease in three weeks, an inch and a half. After stretching, height, four feet ten inches and a quarter.

*August 5th.*—Height in a plaster-of-Paris corset, four feet ten inches and seven eighths, an increase in less than a month, while supported by his corset, of two inches and seven eighths. [This patient was shown after the reading of the paper. He measured without his corset five feet one inch. A new plaster-of-Paris corset was then put on him, and in it he measured five feet two inches and seven eighths, an increase of an inch and seven eighths.]

CASE V.—W. K., aged fifteen.

*February 13, 1891.*—Four feet nine inches and seven eighths; after suspension, four feet ten inches and five eighths.

*14th.*—Suspended night and morning; height this evening after suspension, four feet eleven inches and a quarter, a gain in one day of an inch and three eighths.

*20th.*—Applied plaster-of-Paris corset; patient has been exercised daily and suspended; height to-day before suspension, four feet ten inches and a quarter; after suspension and with corset, four feet eleven inches and three quarters.

*24th.*—Before suspension without jacket, four feet eleven inches and five eighths; after suspension with jacket, five feet and a quarter inch.

*March 2d.*—Before suspension without jacket, five inches and an eighth; after suspension with the corset, five inches and a quarter, being an increase in less than a month of two inches and a quarter in actual height and two inches and three eighths in his height when the corset was applied.

CASE VI.—K. M., aged thirteen years, April 19, 1892. Height before suspension, four feet four inches and three quarters; after suspension, four feet five inches and three eighths.

In October, height without corset, four feet six inches and three eighths; with corset, height four feet seven inches and a half. (See Figs. A, B, C, D, E, F, G.)

CASE VII.—R. W., aged seventeen.

*September 28, 1892.*—Came to me wearing a metal support, which was designed to make lateral pressure against his ribs, and which from its construction seemed to me to be more efficient in compressing than in elongating his spine. I requested his father to take the boy's height in his brace in my office, and he measured four feet eight inches; on removing his brace, he measured four feet eight inches and five eighths. He was then suspended, and after suspension measured four feet eight inches and seven eighths. This is not the first case I have seen in which the patient was more crooked in his apparatus than when left to Nature. This patient suspended himself daily until October 10th, when a plaster-of-Paris corset was applied, and in it he measured four feet nine inches and an eighth, being an increase in two weeks' time of an inch and an eighth in his height in his plaster corset over his height in his iron brace.

CASE VIII.—H. R., aged nineteen, had spinal meningitis at the age of three which left him paralyzed in various muscles of the trunk and lower extremities. During convalescence he was allowed to sit in bed propped up by pillows, and developed a lateral curvature. He was treated with a plaster-of-Paris corset and leg braces for some time, when his mother, becoming dissatisfied, sought other advice, and for years he wore iron spinal braces of various kinds. After a length of time he came under observation once more, this time with an aggravated lateral curvature, as you see in this photograph. His muscles are incapable of holding the trunk upright without artificial support, and I have tried wood, leather, and silicate jackets on him, but he says he prefers plaster of Paris. I thought by my ere that he looked much taller in his corset, and so wrote, ask-

ing him to have his height taken and send it to me. To day I received the following letter:

"YALE UNIVERSITY, November 14, 1892.

"—: Just received your letter, and in reply would say that when I got my new jacket on for the first time I knew from the feeling there must be a large difference in my height, for I no longer felt a *little* man, but rather that I had been drawn out by weight at bottom and pulleys at top to an enormous height; so, being anxious to know the exact fact, I measured myself accurately, and found to my great delight, as well as surprise, that with my new jacket on (also shoes) I was five feet nine inches. How's that for a stretch? Taking off my jacket, my height (with shoes) is five feet seven inches and an eighth, making a clear gain of an inch and seven eighths. I now have hopes of reaching six feet some day by a *good stretch*.

"P. S.—Since I received your letter I have measured again with the same results."

CASE IX.—L. B., twelve years old, July 18, 1889. Height, four feet one inch and three eighths.

*July 27th.*—Height after self-suspension and with corset applied, four feet four inches and a half, a gain of three inches and an eighth.

CASE X.—Emma D., aged twenty. March 23, 1886, four feet six inches.

*March 30th.*—Patient has been suspended twice daily for a week. To-day a plaster-of-Paris corset was applied. Height in corset, four feet eight inches and an eighth, an increase in height of two inches and an eighth, and decrease around the waist of four inches and a half.

*September 27th.*—Height, without corsets, four feet seven inches.

*October 1st.*—New corset applied. Height in it, four feet nine inches and an eighth, a gain of three inches and an eighth.

This patient was a most aggravated case of lateral curvature following infantile paralysis at the age of eight, which gradually passed off, leaving a few of the muscles of the trunk impaired. From the age of nine she had always worn braces of some description, and had grown steadily worse during this time.

You will notice in this case, as in all the others, that a marked increase in height takes place at the first few suspensions, but that after the initial gain the subsequent increase in height is only trifling. Of course, in the younger patients the increase in height which is observed after the lapse of several months is attributable, in part, to the natural growth of the body, but in a woman of twenty the latter factor does not enter into consideration, and hers is only one of a number of cases in which similar increase in height has been noticed.

I was long ago struck with the very great change made in the spines of these patients by self-suspension, but it was not until I had carefully examined the heights of a number, both before and after suspension, and with and without corsets, that I realized the enormous difference made by treatment, the increase in many instances being so great that I should have been inclined to discredit the observation had I not personally seen it.

In one case, with great distortion, in which there was a marked presystolic and systolic murmur at the apex of the heart, with great shortness of breath on exercise and pain in the right side on coughing, I noticed that while the patient was suspended in the swing the pulse beats dropped

from 140 to 122, from 144 to 116, from 122 to 100, from 100 to 86 on various occasions. Every time when I noted the pulse it was from 18 to 28 beats slower while suspended than when the patient was down, and with the jacket applied, while it was not so slow as during suspension, it was, however, much less rapid than when the jacket was on—from 6 to 20 beats slower. This I attributed to the fact that the heart was not so compressed, and was therefore in better condition to perform its functions. She noticed herself that she was much less short of breath and much better able to take exercise while supported by her corset.

I have noticed a similar slowing of the pulse in other cases, but never to so marked an extent, and I have often had patients remark the greater ease of breathing, and the relief of pain in the side while supported by their corsets.

While self-suspension, in the manner I have indicated, is a most useful means of diminishing the curvature of the spine, it is not practicable for a patient to suspend herself for a long period of time, and in many cases I am accustomed to add to self-suspension suspension by means of a weight and pulley attached to a chin piece which is fastened to the patient's head while she lies on her back on an inclined plane which is slightly convex.

The father of one of my patients has devised a most beautifully constructed folding couch to be used for this purpose, which I show here. It is capable of being taken apart and carried in a trunk so that this means of treatment can be employed during the summer while the patient is at various watering places without the necessity of transporting bulky apparatus.

In correcting the rotation, which, as I have before remarked, is a vastly more prominent element in the production of deformity than the lateral deviation of the spine, I find great benefit from having the patient lie upon the face upon the floor or a firm table covered with a thick rug, while I make strong pressure upon the projecting scapula, pushing in a direction forward and away from the central line of the body so as to rotate the vertebræ toward the median line (Fig. 4, *a*). In some cases I allow the patient to lie for half an hour in this position with a shot bag of twenty or thirty pounds' weight resting upon the shoulder, if it can be placed so that the weight falls in the proper direction.

To correct rotation, Dr. Beely, of Berlin, has devised a frame in which the patient leans forward, with the elbows resting upon a couch, while the back is parallel with the floor—very much in the position of a boy playing leap-frog—while a strap passes across the back, sustaining a heavy weight at its end. The objection to it is that the weight, instead of twisting the spine around in the proper direction, acts to compress the ribs laterally, which objection Schede, of Hamburg, has recently tried to overcome, in an apparatus of his devising, by attaching the weight to broad bands of adhesive plaster, which are secured to the walls of the chest. By these he endeavors to twist the spine around a perpendicular axis, while the hips and shoulders are held immovably fixed by means of iron props extending from a circular frame which passes around the patient, who is also stretched by a pulley-wheel and head-swing.

I have had no personal experience with Schede's apparatus nor with that of Bradford, of Boston, which is designed to accomplish very much the same purpose, but have been able to perform the twisting of the spine by means of my hands. In Bradford's apparatus the patient is partially suspended by the hands and arms, the pelvis being firmly fixed on a chair by means of a large screw, while pressure is made against the chest walls at different points by means of padded screws, which pass from a circular band of iron which encircles the thorax at some distance from it, and is firmly fastened to two uprights passing from the chair.

In correcting the rotation of the spine, any apparatus of this sort must pass to the floor for a base of support, and all the machines which have been designed to rotate the upper part of the thorax, while the machine takes its point of origin from the pelvis or thighs, are futile, and are lacking in the mechanical power to perform the work they are called upon to do. All that any machine fastened to the body can do is to retain the improved position which is gained by manipulation or force applied from some fixed point outside the body, and to retain this improved position I am fully convinced that apparatus in the form of a corset which completely encircles the body is preferable to those appliances which make pressure merely at certain points.

The material of which this corset is to be made is not of such vital importance, provided it is light and strong and not impervious to the air. I personally prefer the plaster-of-Paris corset, as being perfectly efficient and vastly easier of construction than anything else. The wood corset of Waltuch, if properly made, is equally as firm as the plaster jacket and a little lighter, but, as usually constructed, does not retain its shape, but warps, and when exposed to the heat of the body is very apt to separate into the component layers of which it is made. The leather jackets, in my experience, are also apt to curl up along the edges, and in summer time frequently acquire a disagreeable odor; the same is true of rawhide. The silicate-of-soda jackets are lighter than the plaster of Paris, but have the objection that they retain the perspiration on the body and act more or less as a poultice. The wire corset is very much cooler than anything else, and in certain cases is probably more comfortable as a retentive appliance than anything else, but in some cases does not retain the increase in height so well as a more solid material. In one of the cases I report this evening, who is now wearing a wire corset, the height is seven eighths of an inch less than while she wore one of plaster of Paris.

The great objection, however, which I would urge against all these forms of appliance is the difficulty with which they are constructed. A plaster-of-Paris corset has, first of all, to be made in which a cast is made, and over the latter the leather, felt, wood, paper, celluloid, water-glass, or wire corset is constructed, which requires either the services of an instrument-maker or the expenditure of a great deal of time by the physician himself, and to those who are not living in the large business centers all of these appliances are much more difficult to manufacture than the ordinary plaster-of-Paris corset. In cases of marked dis-

tortion, and with small children, these second casts are not so accurate in their fit as those made directly on the body. Properly made, the latter, for a girl of sixteen, should weigh from two pounds and a half to two pounds and three quarters, or, if very heavy, three pounds, and yet I have frequently seen plaster corsets which weigh from ten to twelve pounds. If the best dental plaster is used and well rubbed by hand into the meshes of crinoline from which the sizing has been removed by washing before the bandages are made, care being taken not to roll the bandage too tightly or to put in too much plaster of Paris, a corset ought never to weigh more than four pounds for the largest person, and those who complain of want of success and produce corsets like this one that I here show you, should only blame themselves for inability to learn the proper manner of making a plaster of-Paris corset.

You see that this one is like a section of the wall of a house. It is almost solid plaster throughout and incapable of being bent, and is not shaped to the patient's figure, and therefore slipped up and down. On the other hand, I occasionally meet with corsets which seem to consist almost wholly of crinoline, contain no plaster of Paris in the meshes, and are as useless as a handkerchief tied around the body. As a usual thing, it is the failure to use plaster of Paris properly which makes physicians resort to felt and leather.

In putting the jacket on it is important in these greatly distorted cases that the patient should be suspended some little time before the corset is made, in order to gain as good a position as possible. Just before beginning the application of the bandages the patient may come down and rest for a few moments, if the neck is tired, and then stretch up to the fullest extent possible. The physician sits behind the patient and grasps her legs tightly between his knees so as to steady the pelvis and applies the bandages, beginning at the waist, passing from left to right in the ordinary cases of lateral curvature in which the right shoulder is prominent, as putting the bandages around the body in this direction tends to remove the rotation. It is often desirable to have an assistant push the prominent shoulder forward and hold it in this position, untwisting the rotation, as it were, while the jacket is applied. It is always best to have an assistant in front of the patient to keep the bandages smooth as they are applied and rub the layers together very thoroughly. The bandages should be put, one at a time, in water of about blood heat, end up, the length of time required to put on one bandage being about the proper time during which the next one should soak. The hips should be padded outside the shirt before applying the bandages, and for this purpose I use piano felt, made by Alfred Dolge & Son, 120 East Thirteenth Street, which costs \$1.50 a pound; that which I buy is too thick to be used for padding unless split in two.

The knitted shirts which are put on next to the skin, on which the best jackets are made, are knitted for me by the Lawson Company, No. 783 Broadway, and come down to the knees, the end of the shirt being reversed after the jacket has been trimmed out and stitched along the upper edge, completely covering in the plaster of Paris.

The ordinary jersey-fitting underwear can be used for this purpose in case of necessity. Between the jacket and the skin I slide a thin piece of tin, two inches wide and twenty-four inches long, covered with adhesive plaster with the sticky side toward the tin, or a piece of kid, as I can cut the jackets down much easier and quicker with this protection, and it also adds greatly to the patient's feeling of security. In growing girls and adult females it is necessary to put pads over the breasts; except in the case of very thin people or little children, the dinner pad is usually not necessary. It takes from twelve to fifteen minutes to complete a plaster jacket. As soon as the jacket is made, it is cut down the center, in front, on the piece of tin which passes down the median line of the body, and removed. A thin slice is taken off each edge in almost all cases, more being removed at the waist than elsewhere, as, except in very thin persons, it is impossible to draw the bandages quite tight enough in the waist without making wrinkles, and the addition of the kid which covers the edge of the jacket also makes it a little too large unless this slice is removed. The edges of the jacket are then brought together and retained in position by an ordinary roller bandage. If the weather is very damp, the jacket may be laid near the fire to dry; in ordinary weather this is not necessary.

The next day the patient suspends herself again, and the corset is put on and fastened with a roller bandage. It is then trimmed out under the arms and over the front of the thighs until the patient can move her arms and legs with comfort. The corset is then removed. After the corset has been trimmed out, the end of the shirt is reversed over the plaster of Paris and stitched to itself along the free border of the corset. The front edges are bound with kid pasted over the stitching, and a piece of leather containing hooks, such as are used upon shoes, is sewed with an awl and waxed thread along each edge of the corset, the stitching passing through and through the plaster of Paris (Fig. 7). Additional strength is given to the jacket if this leather is wide enough to cover a thin strip of corset steel, half an inch wide and as long as the corset, which is placed under it. In exceptional cases of great deformity it is sometimes necessary to fasten a strip of thin steel on the outside of the corset at the point



FIG. 7.

where most strain is thrown to prevent the corset from breaking. If the patient is very badly deformed, it is expedient to put padding inside of the shirt when it is reversed, in order to make the jacket as symmetrical as possible, and thus avoid the necessity of padding the clothes.

The corset having been made while the patient is stretched out, it should always be applied to him in this position. For this purpose there should be a pulley-wheel and head-swing at home by which the patients can suspend themselves in the morning. The tripod is only useful for traveling. At home a hook should be screwed into a beam to support the pulley-wheel. While thus suspended, the



corset is applied to the patient by some member of the family, and retained in position by lacings joining the hooks on the front of the jacket. The lacing should pass around the two central hooks at the waist first, and then run down to the bottom, be reversed, and passed up again to the top. Applied in this manner, the corset fits better than if the lacing is begun at either end. It is a mistake to cut the corsets down in two places, as I have frequently seen done, and the corset should not be made so stiff as to render it impossible to remove it unless it is cut in two places.

I show you here two little plaster-of-Paris jackets which have been made over a tumbler; the tumbler then being removed, the open end of the box has been covered with more plaster-of-Paris bandages. In the end of each box is a hole which admits the stem of a tobacco pipe. One of these boxes is varnished and the other has been left plain, as all plaster-of-Paris jackets should be.

You will notice that when I blow smoke through the pipe into the unvarnished box, the smoke passes through the plaster of Paris on all sides, while when I blow smoke in a similar manner inside the varnished box it remains inside, showing the box is impervious to air.

I have seen in medical journals articles advising the shellacking of plaster corsets, in order to render them more durable, and wish to draw your attention to the folly of adopting this procedure, because a corset in this way becomes a poultice, as it is rendered impervious to air. In one instance, which came under my father's observation, the whole epidermis peeled off on the removal of a solid plaster jacket coated in this manner. This same objection—the impermeability to air—applies to the silicate-of-sodium and leather jackets, unless they are punched full of holes.

Some of these patients with great distortion, especially if it is dependent on paralysis, require artificial support as long as they live; but others may have their muscles developed to such an extent that they can dispense with artificial aid.

Among the exercises I have found most useful in these cases are the following: The patient stands on the foot of the concave side and stretches the corresponding arm as high above the head as possible, holding a slight weight in the hand. This can be repeated a number of times, varying with the patient's strength, as can also the other exercises.

Standing with the convex side toward a pulley-weight, the patient lifts the weight by pulling the rope with the hand of the concave side, which is passed in front of the body, and draws the rope across the body and upward, at the same time leaning the body toward the concave side and trying to expand the sunken side of the chest.

Standing with the feet together and the knees stiff, the patient bends forward and tries to touch the ground with the fingers, and rises again, lifting the hands before raising the trunk.

Standing with the convex side toward a padded support, like a fence, the patient bends laterally and posteriorly over this, stretching out the hollow side.

Lying on the floor, face upward, both arms by the sides, palms down, the arms are raised vertically till the backs of

the hands touch the floor above the patient's head, the elbows being kept stiff. The arms are then brought back laterally to the position of starting, while the fingers just clear the floor.

There are a number of other exercises which I could dwell on if time permitted, but I will simply draw attention to these few as I have entered more fully into this subject in the paper quoted above, and wish this evening to speak especially of the means of retaining the improved position secured by treatment.

In keeping a record of cases I find that photography is a great help, and I also make use of tracings of the thorax, taken while the patient is bending forward with the arms drooped toward the floor. These tracings can be taken either with a piece of flexible lead tape or with this machine, invented by Dr. Beely, of Berlin, which consists of a number of steel rods sliding loosely upon each other, whose points conform to the outlines of the trunk when the apparatus is pressed upon the back at right angles to the long axis of the body and held perpendicular to the floor, after the manner of machines with which the latter takes the outline of your head. By means of a lever the steel rods are then locked in position, and the machine is laid upon a piece of paper placed on a thin sheet of felt; then, with a little roller, the teeth on the lower surface of the steel rods are pressed into the piece of paper, forming a line which gives the outline of the back at the level where the instrument was applied. By taking the outline of the trunk at each vertebra, in this manner, the difference in outline of the trunk at different portions and at different times can be recorded, and such tracings, taken at intervals of several months, serve as excellent reports of the progress of the case.

This method is, however, very much more tedious than photography, and I employ the latter very much more frequently.

The following method of taking an outline of the entire circumference of the thorax, according to the manner of Dr. Mary Putnam Jacobi, is also interesting, and gives a cross-section of the body at any given point:

A piece of flexible metal tape, provided with a hinge in the center, is passed around the body at any desired point, and made to closely conform to the contour of the thorax. It is then removed by opening the hinge, laid upon a smooth table, the ends of the tape being brought into the same position they occupied when on the body, and plaster of Paris, mixed with water to the consistence of cream, is poured into the center of the tape until it is completely filled to the upper edge of the latter. When the plaster of Paris has set, the tape is removed, leaving a thin slice of plaster of Paris, which represents accurately a transverse section of the body at the point at which the tape was applied.

In these sections that I show you, which were made in this manner, the rotation of the spine is very conspicuous and the sharp angle of the ribs clearly brought out. I have marked on these sections the line corresponding to the antero-posterior and lateral diameters of the body, and the sections through the mid-dorsal region show excellently

the great increase of one oblique diameter and diminution of the other, with prominence of the right scapula, while this section through the lumbar region shows the exact reverse of this condition.

These sections show very clearly the very adverse circumstances under which the heart and lungs labor in performing their functions in advanced lateral curvature, and no one can percuss or auscult one of these chests without being struck with the unusual number of abnormal sounds he meets. Disorders of digestion are also of very frequent occurrence, and many of the cases suffer from severe neuralgias, due to pressure on the intercostal nerves as they emerge from the foramina of exit between the vertebrae. This preparation shows very clearly the great compression which sometimes takes place between the ribs, and shows

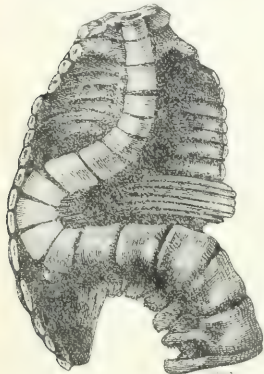


FIG. 8.

how the bodies of the vertebrae may be rotated around the perpendicular axis of the body—almost to a right angle (Fig. 8). You will observe that the lumbar vertebrae and the cervical vertebrae in this preparation are in the same plane, while those in the dorsal region are rotated at an angle of eighty-five degrees, and the ribs are so compressed against the bodies of the vertebrae that one wonders how the lungs manage to expand at all. The

rotation in this case was so sharp that during life the projection was mistaken by a number of gentlemen who examined the patient for the antero-posterior curvature of Pott's disease, the angles of the ribs being mistaken for the spinous processes of the vertebrae.

In exceptional instances, where the ribs are so twisted as to press against each other or against the crest of the ilium, it may be necessary to resect one or more ribs in order to give relief from pain in some cases, and in others to avoid caries from pressure.

While I formerly thought that many of these patients were so distorted that it was useless to attempt to treat them, I have in a number of instances yielded to their solicitations and applied plaster-of-Paris jackets and commenced a system of exercise, with so much benefit to them that I have changed my mind and concluded that I have yet to see a case of lateral curvature so bad that I think it can not be rendered more comfortable by treatment; and if we can make these miserable cripples less unsightly, can help them to conceal their deformity, or can relieve it even in a moderate degree, the result is well worth the time and trouble spent upon them.

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Change of Address.—Dr. C. Teubner, to No. 238 East One-hundred-and-fifth Street.

## ACQUIRED IMMUNITY FROM CERTAIN INFECTIOUS DISEASES

A RESULT OF HEREDITY AND NATURAL SELECTION.

By J. WEST ROOSEVELT, M.D.,

VISITING PHYSICIAN TO BELLEVUE HOSPITAL,  
ATTENDING PHYSICIAN TO THE ROOSEVELT HOSPITAL, NEW YORK.

THE various theories which have been advanced in explanation of the protection afforded by one attack of certain infectious diseases from subsequent attacks may be summarized as follows:

1. The pathogenic micro-organism is assumed to exhaust the supply of some substance present in the bodies of unprotected people, which substance is necessary for the nourishment of the parasite, and which, once removed by it, is not reproduced by the body. This is called "the exhaustion theory."

2. The micro-organism is thought to produce within the body some substance inimical to its own existence, and this antidotal substance, once formed, is not destroyed or excreted by the body. This is called "the antidote theory."

3. It is assumed that in a successful struggle with the invading bacteria the body cells acquire an increased strength—become educated, one might say—and thus are able to destroy the enemy. This new strength they transmit to their descendants, so that the body is better able than before to repel subsequent invaders. Thus is established "tolerance" to the poison, as it is maintained.

The first theory may be regarded as untenable for several reasons, among which are the following, which seems to me to be fatal: If we accept it we must believe that Nature has provided man with a number of different substances which can have no conceivable use other than that of providing food and accommodation for pathogenic micro-organisms. These hypothetical substances are evidently not needed by the human body, since, *ex hypothesi*, bacteria remove them and they are not reproduced; yet the patient recovers entirely, and is not at all the worse for his illness. It would be hard to believe that this could be the case if provision were only made for the growth and nutrition of some *one species of germ*; but when we are called upon to believe that the majority of mankind come into the world with a separate and distinct "substance" suited to the needs of the micro-organisms of small-pox, measles, scarlatina, chicken-pox, vaccinia, yellow fever, and a number of other diseases, the imagination is staggered and the reason revolts against such a preposterous idea. In a sense which will be indicated in another part of this paper, and which was not in the minds of its inventors, it may be said that there is some truth in the theory.

A certain degree of plausibility is lent to the antidotal hypothesis by the fact that, like all living things, bacteria produce by their own vital processes substances which, if sufficiently concentrated, are fatal to the producers. The great objection to it is that we know of no organic compound which is not excreted or destroyed by the body within a short time after its introduction into the system. This makes it hard to conceive that any permanent protection can be afforded by bacterial action.

Of the three explanations suggested—the third, that of acquired tolerance—is nearer to the truth than the others, yet it does not altogether satisfy the mind. While it is free from the objections which apply to the others, it seems to me weak in one important respect. It is perfectly logical to assume that the power of resistance existing in a body-cell should be transmitted to its descendants, in accordance with the laws of heredity; but it is an assumption hardly warranted by experience or observation of other biological phenomena which ascribes to cells the power of acquiring and transmitting peculiar resisting powers during a period of stress such as must exist under conditions which obtain in the infectious diseases. It seems to be improbable that such should be the result of their fight.

To me it seems that the objections to the theory vanish if we apply the law of the survival of the fittest to the problem as well as the law of heredity. Let it be supposed that the feeblér cells concerned in the struggle are for the most part killed. When recovery takes place the body will resume its original functional activity, but it will contain descendants of the cells originally strong enough to destroy the poison of the particular disease through which it has passed. Naturally the qualities of the parent cells are transmitted to their offspring. It is not so much by reason of new powers acquired by the stronger as by reason of the destruction of the weaker cells that immunity is afforded. This is much more in accord with Nature's methods as actually observed in the whole domain of biology. She seems to prefer to slay the weak rather than to leave them to transmit their weakness to others. The strong survive because of their strength, and in the end this is a benefit, for it tends to perpetuate and improve the species and elevate the type which composes the majority of such species. In the long run it is far better that, relatively speaking, a few individuals should suffer and perish than that the whole number should do so at a later day. The survival of the fittest cells in the human body preserves the whole body from danger, if the theory of immunity set forth in this paper be true. Living cells then form the "substance" assumed in the "exhaustion theory" to be destroyed and never reproduced.

The evidence of its truth is largely derived from a consideration of the action of certain laws of Nature upon living organisms of complex structure—viz., animals and plants. It is therefore not to be regarded as entirely trustworthy. Reasoning by analogy is not true inductive reasoning; it is not based upon observed facts. Analogical evidence should be regarded by the scientist very nearly as circumstantial evidence is regarded by the lawyer. The latter can not be considered as approaching in value the testimony of trustworthy eye-witnesses, but its importance increases with each additional demonstrated fact which tends to show that a certain allegation is *probably correct*. When a sufficient number of facts have been presented in court, which, although they do not directly prove a case, make it extremely probable that certain events have occurred (as the lawyers express it, "show its probability beyond reasonable doubt"), circumstantial evidence amounts almost to proof, and has been regarded by the courts as actu-

ally proof. This should be the position of the scientist in respect to any theory which does not rest upon indisputable demonstration. The theory must explain all the known phenomena, and it must conflict with none of them. If based upon analogy, the closer and more evident the analogy, the more probable the theory. As time goes on and new observations are made in the light of more extended knowledge, each one which accords with the theory increases the probability of its truth. When all known phenomena confirm it and *no single one fails to agree with it*, it may be considered as proved. It matters not whether the hypothesis was based upon fact or fancy.

It seems to me that this hypothesis is a rational explanation of the immunity conferred by attacks of the diseases under discussion. The fact that attacks of some acute infectious disorders do not diminish the susceptibility to infection does not, as I think, conflict with it. The reasons which justify the last statement will be given in another paper. For the present it is desired only to give very briefly an outline of this theory in its relation to certain others.

If the doctrine of phagocytosis is correct—if the disease process is a direct conflict between the phagocytes and the invading germs—then surely the weaker cells must perish, and, when the struggle is over, the body must find in the descendants of the stronger a safeguard against subsequent invasions. If it is by chemical substances produced within the body that the bacteria are overcome, the theory is perfectly reasonable. The bactericide necessarily is a product of cell activity; it is the direct or indirect action of the living tissue elements which determines the constitution of all the secretions and excretions. The blood plasma is no exception. If the latter contains as one of its normal constituents something toxic to certain forms of bacteria when present in sufficient amount, it is because some living cells produce it, as part of their life work. If the presence of the germ determines the production of such a substance, not previously existing in the plasma, it is still by cell activity that it is made. If recovery depends upon speedy elimination of the bacteria or some product of their growth, or something necessary for their nourishment, again it must be accomplished by body cells. It might be that the micro-organisms of some diseases can only flourish by killing certain cells, directly or indirectly. Whatever be the method of attack or defense, the struggle is between germ and cell. The living tissue elements which are least able to withstand the stress of the conflict must succumb sooner than their stronger fellows; it matters not whether the weakness results from lack of sufficient destructive power as a phagocyte, or of sufficient power to produce an unusual quantity of some bactericide, or of adaptability to changed environment sufficient to manufacture some offensive or defensive substance different from that previously produced, or to withstand the deleterious effects of some product of bacterial life, or to remove some substance necessary for bacterial nourishment, or to do any work in the fight of any sort.

It may be objected that there is no proof that cells inherit qualities possessed by their ancestors. There is no



direct proof; but to deny the fact would be equivalent to asserting that the whole is not equal to the sum of all its parts, for the hereditary peculiarities of animals are admitted, and animals are composed of multitudes of cells. If the latter do not inherit and transmit certain peculiarities, how can the former? If spermatozoon and ovum are able (as they unquestionably are) to influence so powerfully the development of the entire body as to cause physical or mental characteristics to recur generation after generation, it is impossible to conceive that this result can be produced unless every generation of their descendants (the body cells) receives and transmits hereditary traits.

It seems equally inconceivable that the law of the survival of the fittest, which is of universal application throughout the whole animal and vegetable world to each individual animal or vegetable of every species, should fail to apply to every cell forming part of these individuals. No reasonable explanation can be (or, at all events, has been) adduced of the existence of such an anomaly in Nature.

It is a much more plausible supposition that qualities already possessed congenitally by the cells should be transmitted to descendants than that those acquired in a short, fierce struggle should be transmitted. Indeed, the possibility of the transmission of acquired traits is denied by some biologists. Of the congenital traits there is no doubt.

Of this theory it may be said, at least, that it is very fascinating. Is it not also suggestive and plausible? Is it not worthy of consideration as a working hypothesis, if nothing more? In another paper I shall discuss in detail the application of it to a number of diseases, and also to the protective effects of inoculations with attenuated virus and with vaccine.

#### A CONTRIBUTION ON THE OCCURRENCE OF MENTAL DISTURBANCES FOLLOWING ACUTE DISEASES IN CHILDHOOD.\*

By SARA WELT, M. D.,

ATTENDANT IN OUTDOOR DEPARTMENT FOR CHILDREN'S DISEASES,  
MOUNT SINAI HOSPITAL.

THE occurrence of mental derangements in childhood has been known for a long time. In the records of the Braunschweig Insane Asylum of the year 1750 a case is mentioned of a girl, eleven years of age, who had been sent there for the treatment of melancholy. Greding's book, published in the year 1790, contains a communication about a nine-months-old baby, the son of an idiotic mother, which suffered with maniacal attacks, and died of marasmus and suffocation at the cutting of its first teeth. Indeed, more than fourteen hundred years ago, Cælius Aurelianus, in his work *De morbis acutis et chronicis*, remarks on the rare occurrence of mania among children in the following: "Generatur autem mania frequentius in juvenibus ac mediis ætatis, difficile in senibus atque difficilior in pueris, vel mulieribus." But it was only during the second half of

the present century that attention was called to and a thorough study of the psychoses among children made.

The first noteworthy treatise originated from an English author, Ch. West, which was followed in Germany by a monograph on this subject written by Berkhan in the year 1865. Somewhat earlier there appeared the first essay on psychoses in connection with acute diseases by Boileau. Besides some few less important articles, there appeared in the year 1865 some very valuable contributions on this subject by H. Weber and Muguier. As some few communications from Thore and Griesinger prove, the occasional occurrence of mental disturbances in connection with somatic diseases was not unknown to the older physicians; even Sydenham, in the year 1676, mentions that intermittents may be followed by alienations.

The statistics on the frequency of mental derangements in children vary very greatly among the different authors on account of their different ideas as to the limits of childhood. However this may be, it seems to be certain that alienations in the first ten years of life, aside from idiotism, are very rare. Out of ten thousand inhabitants, Emminghaus found in Germany, between the first and fifth years, 0.18 per cent. insane; between the sixth and tenth years, 0.69 per cent.; and between the eleventh and fifteenth years, 1.46 insane; while Deboutteville, in France, found among the insane admitted to the asylum in Saint-Yeu from 1827 to 1834, 0.9 per cent. between the fifth and ninth years, 3.5 per cent. between the tenth and fourteenth years, and 20 per cent. between the fifteenth and twentieth years. Turnham found but eight children less than ten years of age among twenty-one thousand three hundred and thirty-three insane; idiots, who are far more frequent in number, not being included. The most common mental derangement in childhood is idiocy, be it congenital, depending upon insufficient development of the brain, or acquired as the result of some other previous cerebral trouble. Next in frequency is the maniacal exaltation and mania, while melancholic depression is but rarely met with and only in late childhood.

But I think we may assume, with all probability, that insanity in childhood occurs more frequently than is evident from the statistics given. As no psychosis in childhood shows the entire complex of symptoms as in adults, it is readily understood that the symptoms of a mentally deranged child may often be taken to be bad behavior, and only the result—the idiotism—will be recognized.

Besides heredity, especially from the maternal side, the ætiological factors in the production of mental disturbances in children are injuries of the head, either during parturition or later; acute cerebral trouble and abnormal development of the brain; insolation; fright; masturbation; and infectious diseases. Of the latter, I mention, according to their frequency, typhoid, pneumonia, acute articular rheumatism, measles, scarlatina, and angina faucium. During the last three years I have had the opportunity of observing mental derangements following infectious diseases in three children. On account of their infrequent occurrence, I take the liberty of reporting the *ms*o far as my memoranda permit. In all three cases the alienation manifested

\* Read before the German Medical Society, New York, December 7, 1891.

itself after the total disappearance of the fever—in one child in the defervescence stage of scarlatina, in the other during convalescence after typhoid and diphtheria. In the literature at my disposal I was able to find but one case following an inflammatory affection of the throat. This is described in H. Weber's classical essay, and published in the *Medico-chirurgische Transactions* of 1865. On account of the similarity in the aetiological factors, permit me to report briefly Weber's case.

A man, twenty-five years of age, suddenly exhibited, after a severe inflammatory affection of the throat, symptoms of mental derangement. Laboring under the delusion that his business was being ruined, he tried to kill his wife, child, and himself in order to be saved from coming disaster; but, being prevented from carrying out his intentions, he got well in less than two days after the administration of large doses of morphine and a moderate quantity of wine. He remained very low-spirited during the next fortnight, and only then did his previous cheerful disposition return. The delirium was accompanied by symptoms of collapse.

The first case I observed was that of Franz Z., a boy ten years of age, of healthy parents; a half-brother of his father died of consumption; several of his mother's brothers and sisters (eight) died of infantile diseases; one living sister has epilepsy. The mother of the boy had seven children. The first was a still-birth, the second died with pneumonia, and a third during dentition. Of the four remaining living children, a younger brother, suffering with frequent attacks of bronchitis, and a baby, ten months old, with otitis media and retropharyngeal abscess, have been under my care for treatment. Franz was born at full term during a normal labor, and early developed symptoms of rickets, the first teeth appearing at the end of his first year, and at the termination of the second was hardly able to walk. Off and on he suffered with convulsions; he had measles, scarlatina, and frequently bronchitis; also swelling of the glands of the neck. From his fifth year he always was healthy, went to school, and was an industrious and intelligent pupil.

In the latter part of February, 1889, he fell sick with high fever. The temperature rose to 104° F., with a rapid pulse. He complained of severe headache and difficulty in deglutition. On inspection, the tongue appeared covered with a thick, yellowish-white coating. There was intense hyperæmia and swelling of the velum and the posterior wall of the pharynx, while on both enlarged tonsils were small circumscribed diphtheritic patches. There was also considerable swelling of the submaxillary glands. The viscera of the thorax and abdomen were found to be normal, and the constitutional symptoms in accordance with the local affection.

To reduce the temperature I ordered antipyrine in doses of 0.3, and for the throat affection hourly cold compresses; every two hours 0.3 tincture of the chloride of iron dissolved in glycerin and water, besides frequent administration of milk, whiskey, and beef tea.

The fever kept on for the next three days, but the symptoms decreased in severity, and on the sixth day after the onset the local affection had disappeared with the exception of a slight redness of the fauces. The patient felt considerably better; his appetite returned; he passed large quantities of urine, which contained neither albumin nor sugar, but, although the temperature was normal, the pulse was weak and frequent; bed rest and light roborant diet was therefore ordered. In the course of a few days the patient became unusually restless; he could not sleep at night, and lost his appetite. Contrary to

his habit, he was very talkative, and often gave impudent answers. After the administration of one gramme of bromide of potassium in the evening he slept somewhat better; but gradually the restlessness in the motor as well as in the psychic sphere increased considerably. Being now in very good humor and in an incessant talkative and playing mood, he quickly, after a slight cause, became excited to excessive anger, with hostile intentions toward his family. Sometimes, without any reason at all, he was furious, full of mischief and brutality. In one of his violent fits, in an unguarded moment, he tried, after having broken the window glass, to throw his little favorite sister into the street. At another time he beat, bit, and choked his mother, and tore her dresses off her body until he fell back exhausted. At times these raving attacks were preceded by stupor with staring glance and rigid position of the body, his face as well as his hands and feet being covered with perspiration, while the pulse was very frequent and irregular. He had lost his appetite entirely, and only with a great deal of trouble could he be induced to partake of some food. He rested very badly in spite of administration of sulphate of morphine. My proposition to send the boy to an asylum was not accepted by the parents, especially when I told them that the cessation of the mania in a few weeks was to be expected. In his madness he tore and broke everything he could lay hands on, with the exception of the many portraits of saints with which he was surrounded by his bigoted mother; with the fragments and remains he played for hours. In the presence of strangers he often would control himself, and was then vivacious and animated, sometimes using rude and indecent language. Often he mistook persons whom he knew before very well. Very rarely he had hallucinations—often of sight than of hearing; they were mostly of a fretful nature, contrary to his usual gay state of mind. This condition remained nearly unchanged until the end of April, 1889. From this time his motor and psychical restlessness decreased and slow but steady improvement set in; his raving attacks occurred less frequently; he became quieter and in his behavior more modest. His appetite increased, and he passed comfortable nights, yet he was unable to recollect many words. He also had totally forgotten to read and to write. At the end of May he was sufficiently improved to leave for the country, accompanied by his mother, and returned perfectly restored from there in the beginning of July. He remembered the past very well and felt ashamed if anybody referred to it. He was able to read and write again. Since then he always has been well, with the exception of an attack of angina faucium, from which he recovered in a few days without experiencing any disagreeable consequences.

The second observation was made in Lizzie S., a girl twelve years and a half old, yet of infantile habits. She comes from a healthy family and suffered from but few diseases of childhood. She was, however, according to the report of her mother, always a pale and puny child. In August, 1889, she was taken ill with typhus abdominalis; fever, roseola, enlargement of the spleen, and disturbance of the alimentary canal were present, but the course of the disease was rather a mild one. There were no hemorrhages of the intestines and no delirium febrile. About two weeks after the beginning of convalescence the usually vivacious girl became depressed, she lost her appetite, and slept badly. The urine, which was passed in copious quantities, contained neither albumin nor sugar. She would often cry for a long time without any cause whatsoever, and finally explained that she was annoyed by terrible thoughts which she could not abandon. She felt impelled to kill her mother, but did not like to do so. The separation of the girl from her mother, who was afraid for her own life, was impossible on account of various reasons. Iron and roborant diet

were ordered, and in the evening small doses of opium to promote sleep. In the course of the next few days she was still repeatedly troubled with imperative conceptions and melancholic depression, and only after a lapse of a few weeks fully regained her normal state of mind.

The third case observed was a boy, five years old, very well developed for his age. He came from very healthy parents and was himself never ill until one year ago; in the last year he suffered from measles and frequent attacks of angina tonsillaris, which left him anemic and badly nourished. Last January he had scarlatina of a very mild type; the diagnosis, however, could be made with certainty, especially as in the same house only a few days before a child died of the same disease, the parents of which frequently communicated with the family of my patient. Fever and exanthema disappeared in due time; the urine was perfectly normal and there was no symptom of meningeal trouble; suddenly, after having been fretful and peevish some time before, his restlessness increased considerably; he did not recognize and repulsed his mother, to whom he had always been exceedingly attached. Laboring under the delusion that the house was on fire, he made efforts in his greatest terror to leave his bed and run into the street; he was very pale and his face was covered with profuse perspiration; his eyes were staring, the pulse very frequent and irregular; whisky and pulvis Doveri were ordered, but, notwithstanding, he passed a restless night; next day the little patient had a similar but rather milder attack of excitement with hallucinations; the treatment was the same as on the previous occasion. Regarding the character of the hallucinations, it is of interest to note that there was really fire in the house a few months before. At the time the boy was said to have been in great fear. The duration of the mental disturbance in this case was forty-eight hours.

The alienations described have, in spite of their different character, that in common, that they occurred in children descended from healthy parents; that they followed closely various infectious diseases, and appeared some time after the complete decline of the fever. Especially important is the absence of meningeal symptoms and kidney affection. The character of the mental disturbance varies considerably: in the third case manifesting itself by rapidly vanishing delirium with hallucinations of sight; in the two first cases approaching in character psychoses of spontaneous origin; in the second case the melancholic depression, so rarely observed in childhood; while in the first case a slight diphtheritic attack was followed by an acute mania of three months' duration. In all patients the onset of the trouble was accompanied by symptoms of great debility, even of collapse.

The described mental derangements belong to the category of psychoses which H. Weber classifies as "acute insanity during the decline of acute diseases"; Kraepelin as asthenic psychoses; while Traube calls them "Inanition-delirien."

Already early the attention was called by Thore and other authors to the fact that psychoses following acute diseases are of two classes: the first is met with during the development and the duration of the acute process itself, while the second class is found only during convalescence, or at least during an afebrile intermission of the disease. The ætiology, as well as the course and the issue in these two groups—the febrile and asthenic deliria—differ considerably.

Kraepelin points out that in the pathogeny of the febrile deliria the producing cause of the disease prevails considerably over the predisposition of the individual; the causes of the disease, though, are dependent upon somatic disturbances (high temperature, increased metabolism, etc.). Hence the monotony of the febrile deliria, the short course, and the nearly always favorable issue with the disappearance of the ætiological cause; on the other hand, the predisposition of the individual forms, the most important factor in the development of the asthenic form. The lowered state of the system, depressed by the preceding fever and infection, exhibits itself more when the circulation is retarded during the decline of the fever; and the brain, which may have suffered in its vitality by the preceding rise of temperature, is the first organ that reacts on the inadequate supply of blood; besides, there may be an influence of the infectious elements (in the first case of the diphtheritic bacilli) upon the central nervous system itself, either directly by affecting the ganglionic cells, or indirectly through a change of the blood by the micro-organisms. In this deranged state of equilibrium of the system even slight irritating influences, such as are afforded by the events of daily life and which are frequently overlooked, may lead to the development of mental disturbances. In their course the asthenic psychoses resemble the mental derangements of spontaneous origin, and they usually terminate in full recovery; with the progressing convalescence and better nutrition of the brain its morbid changes disappear. H. Weber thus thinks the prognosis favorable: "Die Störung verschwand in seinen Fällen nach einigen Tagen, ohne andere Spuren zu hinterlassen, als die eines sehr lebhaften Traumes"; but he admits that in some cases the trouble may become a permanent one.

Kraepelin, whose explanation of the pathogenesis of the asthenic psychoses I have accepted, found, in four hundred cases of febrile deliria collected from the literature, eighty-seven per cent. of all cases cured in four weeks; while of three hundred cases of asthenic psychoses, only fifty-nine per cent. recovered in the same time. The termination of the disease was in the first group sixty-three per cent. recovery and thirty-seven per cent. fatal, while in the second group eighty-two per cent. recovered, 6.9 per cent. died, and in 10.6 per cent. the mental disturbance continued chronic.

Delasiauve tells, from his great experience, that a number of individuals who have suffered and recovered from mania in their childhood were, as adults, again admitted to the asylum—a fact which has, *quoad prognosis*, to be taken in consideration. Occasionally the disease may terminate in idiocy.

As a matter of prophylaxis, children after acute diseases, especially when in an anæmic and poor condition, ought not to be allowed to leave the bed too early, and the action of the heart should be carefully controlled. Threatening spells of weakness ought to be prevented by administration of good nourishment and stimulants. In occurrence of deliria strict control of the patient becomes necessary; bed rest and a generous administration of alcoholics and heart stimulants. Against the irritable state of the brain,



frequent dosing of sedatives in often repeated and, if necessary, larger doses.

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## CATARACT EXTRACTION.\*

By E. C. RIVERS, A. M., M. D.,

DENVER, COL.

THE operation for extraction of cataract is the most important the oculist has to perform. It may not require more skill or judgment on his part than other eye operations, but the results to the patient of having sight restored to a blind eye are so great that the subject must always be one particularly fascinating to both patient and doctor. In a matter of such moment it is not surprising to find wide divergence of opinion as to the values to be placed on different methods of operating, or different instruments or manipulations to be used in certain steps of the operation, and conflicting opinions by operators of apparently equal ability in regard to the best dressings and after-treatment to be employed.

I do not propose, however, either to present here an epitome of the history of the operation for extraction, or to pose as a critic of other more able and experienced operators, even if time was sufficient and my ability to do so unquestioned.

My object is simply to give an account of my own experience in this line, hoping it will prove of some interest, if not on account of methods and means that have proved of value in my hands, at least that any failure or mistake on my part might be instructive.

In order that any value can be attached to a paper of this kind, it is necessary that all the extractions done by one person, whether followed by good or bad results, should be given. For this reason I have not neglected to give every case recorded in my record books, or that I could remember with sufficient accuracy, of operation done long enough ago to have the result determined. This is my apology for bringing to your attention some cases which, possibly, some of you will think had better been left buried in the past.

The cases have not been selected in any way, but have been all those in which an extraction of a cataract, whether complicated by other disease of the eye or not, seemed to your reporter to be the best interest of the patient. In this number, however, I have not included cases of dislocated lenses removed.

The whole number of eyes operated on is fifty-one, in thirty-eight individuals, the youngest about twenty-three years old, the oldest eighty-four years and six months.

In enumerating the results, all in which vision amounted to  $\frac{1}{200}$  or more have been called successful; of these we

have forty-four. In only one of these was vision as low as the minimum. All cases not followed by such improvement will be related more at length.

Of the successful cases, one was a Morgagnian cataract, with adhesions to the iris. One had a very peculiar dark streak, extending from the center to the periphery (below) of the capsule, easily seen with the naked eye on examination, and at first thought to be a foreign body, but proved not to be.

One patient, aged thirty-two, had punctate opacities in the lower portion of Descemet's membrane. No history of pain or injury to eye. Operation, with iridectomy, smooth and successful. One patient broke out, two or three days after the operation, with a severe facial erysipelas. The eye was not affected, and wherever the skin was covered on the cheeks and forehead by the bandage, the inflammation did not extend. One other case needs to be spoken of on account of its being caused by a small piece of iron in a man about twenty-three years old. The lens was extracted; no foreign body found; results good. Only one patient got vision = 1. This was the only eye the patient had. The opacity was confined to the central part, and apparently not increasing, the vision remaining the same for over a year. He had no difficulty in getting around, but his sight was not good enough for him to work. Iridectomy was performed, the lens was expelled without difficulty, and, much to my surprise, it came away altogether and was perfectly hard. In two other cases vision was nearly equal to 1. One had had a slight corneal cloud since childhood. As stated above, only one case was as low as  $\frac{1}{200}$ , and that could be improved by further operation on the capsule, but the patient is unwilling to risk any loss of what sight he has.

Dissection of the capsule was performed in thirteen cases. Several other patients could have increase of vision by the same means. The secondary operation caused great damage by suppurative of the vitreous in one eye operated on successfully three years before. The patient was operated on with the knife made for this purpose, and bandaged with antiseptic precautions. Thirty-one hours afterward severe pain began in the eye, with loss of vision. Examination showed suppuration in the anterior portion of the vitreous and slight cloudiness at the point of puncture in the cornea. He was a hospital patient, and had freely bathed his eye after I had left him with the holy water in the hospital chapel, undoubtedly producing the infection.

Of those not classified as successful, one patient, who did not have perception of light, was operated on at his own request for cosmetic effect alone. Examination afterward showed extensive vitreous opacities. One patient was operated on at his request, although great doubt existed whether all the opacities visible were in the lens. Here also extensive vitreous opacities were found. In both these cases the corneal wound healed perfectly and the pupil remained open and black. Vision of course was not improved.

During the past few years a return has been made in great measure to the old method of "simple extraction"—that is to say, without an iridectomy. Among my fifty-one cases eight have been done by this method and forty-three with an iridectomy. I have found in this small number no difference in the average of vision obtained.

When the lens is hard and I have reason to think there is not much cortical substance, I perform the simple operation, provided no unlooked-for occurrences necessitate ex-

\* Read before the Colorado State Medical Association, June, 1892.

cision of a piece of iris. In expelling the lens through the natural pupil I go slowly, giving the pupil time to dilate under the pressure as it passes through. In one case, where a simple operation was intended, I was obliged to iridectomize on account of the rigidity of the sphincter pupillæ; in another, on account of the iris falling over the edge of the knife and being wounded. In all cases of simple extraction I place my incision in the clear cornea, after the manner of Dr. Bull, and have the apex of the flap one or two millimetres above the opaque portion of the cornea. This always makes the iridectomy more difficult to perform if it becomes necessary, but prevents prolapse of the iris. It makes more difficult the making of a smooth incision, the edge of the flap often being irregular, and consequently increasing the astigmatism. Where iridectomy is to be done, I place my incision as near the corneal edge as possible, but do not make a conjunctival flap.

In opening the capsule, I usually, in both methods, use a Knapp's knife and open it freely on the anterior surface. In simple extraction I pay no attention to the prolapse of the iris, which usually takes place on completing the corneal incision, except not to injure it in any way. In the majority of cases it returns to its proper position spontaneously after the lens is removed, or can easily be replaced with a spatula.

In expelling the lens I always use the spatula, and in some cases, when the patient is under good control, make counter-pressure with the fixation forceps over the posterior flap of the wound. To remove cortical substance, if necessary, I irrigate the anterior chamber with water that has been boiled and is still warm, or boric-acid solution, by means of an ordinary pipette that has been disinfected. The point is only inserted at one corner of the wound sufficiently to allow the fluid to enter the eye.

The two most serious objections I have found to the simple extraction are the difficulty of removing the cortical substance and the almost invariable iritis followed by posterior synechia; only two of my eight cases being free of the latter. In several they were only slight. The small size of the pupil after this method prevents any free laceration of the capsule afterward if it should become desirable. Fortunately, I have had no case of prolapse of the iris.

Every patient I operate on by either method is treated for several days previously by a solution of bichloride (1 to 5,000) three times a day, and any conjunctival or lacrymal trouble is first removed as far as possible. Atropine is employed to determine the condition of the lens and iris in all cases. Just before operating I disinfect the eye and surrounding parts with either the bichloride or a saturated solution of boric acid. My instruments are cleansed with hot water and usually placed in alcohol, from which they are taken as needed. My hands are cleansed with soap and hot water. I always use a speculum and remove it only at the completion of the operation, when the eye is thoroughly washed with a solution (saturated) of boric acid, and cotton wet with the same is placed over both eyes and held in place by a roller bandage. When ready to remove the speculum I always caution the patients not to close the lids tightly, as they feel like doing after the stretching of the

instrument, but let them come together very lightly. I do not now use eserine, even in weak solutions, after the simple extraction, to contract the pupil, as I do not think it necessary or scientific. With the high incision, if a prolapse of iris should occur, it would be much larger with a contracted pupil than if the eserine had not been used. In one or two of my eight cases I filled the eye, before applying the compress and bandage, with a solution of atropine, eight grains to the ounce. I not only got no prolapse, but I noticed little if any difference in the posterior synechia following in these cases and in those in which I had used eserine. I do not consider that I increase the danger by using atropine, as it will not dilate the pupil as long as the anterior chamber is open; and as soon as the anterior chamber is sealed, by the corneal wound uniting, the danger of prolapse is removed.

My after-treatment is regulated by the amount of pain experienced. The bandage is usually removed, the outside of the lids cleansed with the boric-acid solution, and the cotton changed at the end of twenty-four or forty-eight hours. On the third day usually I begin using atropine drops twice daily. If the patient has had no pain I do not examine the eye until the fourth or fifth day. On the fifth I leave the unoperated eye open if it has any vision.

Most of my patients are operated on at their homes, but not necessarily on their beds. I operate usually at three o'clock in the afternoon. I require my patients to remain where operated on until bed-time, when they are allowed to walk to the bed and are made to remain there according to what I think best for each individual case—usually until the fifth day. I never operate on both eyes at one time, preferring to give the patient every chance to get at least one eye with useful vision.

The accident of least moment happening to me during the operation has been that twice, by a sudden movement of the eye during the passage of the knife through the anterior chamber, the aqueous has been evacuated. In both cases I cautiously withdrew the knife and waited, with the eye covered by a compress, until the chamber refilled, and then completed the operation. No trouble followed in either instance. The more serious accident I have had was once when I made the counter-puncture.

The patient became frightened and suddenly pulled away from me violently and sat up before I could release my hold upon the knife, completing not only the corneal incision, but also expelling the lens in the capsule, together with considerable vitreous adhering to it, on to the sleeve of my coat. I instilled atropine solution and applied a bandage and cotton. The patient recovered with  $V. = \frac{1}{2} \frac{10}{100}$ , which, as above stated, could be improved by needling the pupillary membrane present, but the patient prefers to stay as he is. The patient was unnerved by my pointing out the steps of the operation to the students near by. Now I operate with my mouth shut.

In three eyes I have had dislocation of the lens, two of these in the same individual, an old man of seventy-five years, with trembling irides, due to a fluid condition of the vitreous. As soon as the lenses were touched they sank out of sight. I fished up one, and removed it from the fundus of the eye; but neither eye had any vision, except

perception of light, even after the lens had disappeared from the pupil.

The other was in a man nearly as old—seventy-four years—who was *non compos mentis*, and would not keep his eye still during the delivery of the lens. About half the lens was expelled, when there was loss of vitreous, and the remaining portion of the lens was dislocated upward out of sight. Several attempts to recover it only produced more loss of vitreous. The eye was closed with the usual dressing. The patient at first had good vision, but after about six months the eye was lost by iridocyclitis.

It would have been better to continue my attempts until I recovered the dislocated lens, but I did not then know enough to do so.

One case was lost by using a general anæsthetic badly administered. The eye had previously been iridectomized for glaucoma—in a very nervous old lady, who insisted upon having ether given her by her family physician. The administrator allowed the patient to come from under it just as the operation was completed. The vomiting and uncontrollable actions of the patient caused extensive loss of vitreous in spite of the compress of cotton held over the eye to prevent it. Inflammation followed with closure of the pupil, vision being equal to perception of light. Only one other patient had any loss of vitreous, occurring as the speculum was removed; this one recovered with good vision. One case, intended to be a simple extraction, was iridectomized on account of the iris falling before the knife and being wounded in making the incision. Vision =  $\frac{2}{3}$ .

During the after-treatment several slight accidents, such as injuring the eye by the hand or striking it against objects, have happened, but none have been followed by serious results.

In two cases there has been suppuration, besides the one above stated, following dissection. One was one of my first cases. No antiseptic precautions were employed. Suppuration began on the fifth day. The pupil was finally blocked by thick inflammatory membrane. It was afterward incised with De Wecker's iris scissors, but the vision thus gained was soon lost by closing of the pupil made. The other was in a case of simple extraction, and began twenty-one days after the operation—after the patient was allowed out of the house. All sight for a time was lost, but the vitreous, to which the suppuration was confined, under atropine and constant hot, moist applications, cleared up. Vision =  $\frac{2}{3}$  at the last examination without further operative procedures. After the suppurative process had ceased, a point of iris was observed adherent to one corner of the corneal wound. Whether a small portion of the wound failed to unite thoroughly, giving entrance later to some pyogenic micrococci or not, can not be stated positively, but such was my opinion.

To recapitulate, I have operated in all fifty-one times.

Forty-four of these have been successful in restoring useful vision. Seven patients have not recovered vision. Of these seven, two, although the operation was successfully done, were not expected to regain any vision, on account of other eye troubles. Two others had eyes with fluid vitreous, and it was very doubtful if the blindness was due to the cataracts alone. However, these operations as performed would not have been successful if there had been vision in the eyes. Three cases were lost through causes directly connected with the operation and treatment, and which possibly might have been prevented—viz., one of dislocation of the lens,

one of suppuration, and one due to the effects of the ether passing away too quickly. Of the fifty-one, eight were done without iridectomy, of which none were unsuccessful, and forty-three with iridectomy, including all the complicated cases and all the losses. Four per cent. of cocaine in a saturated solution of boric acid was used in nearly all cases.

## A UNIQUE FRACTURE OF THE PATELLA.

By C. R. PARKE, M. D.,

SCRANTON, PA.

THE case that I wish to speak of is of interest to me in that I had never seen anything of the kind before, and, after seeing it, I was unable to find a similar fracture spoken of in any of the works I was able to consult.

On February 16, 1893, I was called to see M. S., Hungarian miner, aged twenty-two, single. On December 13, 1892, while at work in the mines loading coal into a little mine car, a car from another breast came down the track, and his right leg was caught between the two cars as they came together. The immediate result of the accident was severe pain and inability to walk. There was a severe contusion about the knee joint, though the skin was not broken.

Extensive swelling immediately followed, and, upon the arrival of a local surgeon, a diagnosis of "contusion and sprain of right knee" was made. The treatment consisted of liniments and lotions. The man improved so that he went about the house, but was very lame and had but slight control over the right leg.

Upon making my examination on February 16th, I found the general appearance of the right knee similar to the left, the only difference being that the right patella was not as prominent as the left and seemed slightly lower on the leg. Patient was able to extend leg (by muscular force) very imperfectly. Upon placing my hands upon the knee, I found the ligamentum patellæ lax. The patella seemed complete in its entire circumference, but three fourths of an inch above the superior border I found the inferior border of another patella, which also seemed entire in its circumference, with the exception of the inferior border, which was nearly straight across. The surface of this second patella was flat, however, not convex, as was the lower one.

These two patellæ seemed bound together by some kind of ligamentous union. Upon grasping either of them firmly, I was able to get my fingers under sufficiently to make out that they were but about half the thickness of the normal patella. I then realized the nature of the trouble. The patella had been caught by its external and internal edges between the little mine cars, and had been cracked throughout nearly its entire circumference (the exception being just at the attachment of the ligamentum patellæ) just as one would crack open a peanut. The anterior half retained its attachment to the ligamentum patellæ, and the posterior half was drawn upward by the quadriceps extensor muscle.

With the foot placed upon a chair and the muscles relaxed, by extreme extension of the leg I was able to draw down the posterior fragment so that its lower edge readily slipped under the upper edge of the anterior one.

Operation in this case seems to me to hold out a very bright promise of success, for the fragments could be wired easily, and, if once wired, there would be practically no chance of them separating. Whether or no an operation will be allowed I can not at present say.



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THE NEW YORK PHYSICIANS' MUTUAL AID ASSOCIATION.

THE *Twenty-fourth Annual Report*, for the year 1892, shows that the number of members in good standing at the close of the year was 1,143, a net increase of nearly thirteen per cent. during the year. Since the recent extension of the association's field beyond the limits of the metropolitan district, the profession throughout the State has shown commendable promptness in availing itself of the benefits consequent thereon. Thus, we find that there are fifteen members in Albany County, two in Broome County, five in Cayuga County, five in Chemung County, one in Chenango County, one in Clinton County, two in Cortlandt County, four in Dutchess County, thirty-one in Erie County, one in Essex County, two in Fulton County, one in Greene County, two in Herkimer County, one in Jefferson County, twenty in Monroe County, four in Montgomery County, two in Niagara County, three in Oneida County, seventeen in Onondaga County, one in Ontario County, five in Orange County, eleven in Queens County, two in Rensselaer County, four in Richmond County, one in Saratoga County, four in Schenectady County, one in Schuyler County, two in Steuben County, four in Suffolk County, three in Sullivan County, one in Tioga County, one in Ulster County, and eighteen in Westchester County. Besides these, there are twenty-three members who are no longer residents of the State. The interest in Erie County is so great that Buffalo has an auxiliary committee, consisting of Dr. W. W. Potter (chairman), Dr. G. L. Brown, Dr. W. S. Renner, Dr. B. H. Daggett, Dr. J. J. Walsh, Dr. E. H. Long, Dr. E. Wende, and Dr. W. G. Gregory (secretary and treasurer).

The association's history, as the president, Dr. Daniel Lewis, well says, is one of uninterrupted growth. The amount now paid on each death is a thousand dollars, the highest amount allowed by the by-laws, and it has been decided that for the present it would not be wise to increase this amount. The permanent fund benefits by its not being increased; nevertheless, by a plan under consideration, part of the surplus may be used occasionally to make a payment on a death, and thus reduce the number of assessments. As it is now, however, the assessments in 1892 were only fourteen, and, taking this as a fair annual average, each of the members is insured for \$1,000 at a cost of \$14 a year—a very low rate for life insurance.

Concluding his report, Dr. Lewis says: "As we enter upon the twenty-fifth year of our existence, it is with a keen appreciation of the wisdom and foresight of the founders of the association, who laid the corner-stone of this charity and through a long period of arduous endeavor finally succeeded in establishing an organization that will be enduring and just as broad

and comprehensive in its usefulness as your united zeal and energy shall elect to make it." These reflections should commend themselves to every physician eligible to membership—i. e., every physician living in the State of New York; furthermore, we think they should lead to the formation of like associations in other States.

MEDICAL FADS.

THE March number of the *North American Review* contains an article by a medical officer of the city health department that we think may properly be termed a caricature of the medical profession. It is very easy in the routine of official work to lose touch with the practical side of medical life, and to assume that it is a matter of caprice or fad. To have written *currente calamo* that "the practice of medicine might be defined, not unfairly, as a succession of conundrums presented for solution, with death to the patient as the penalty for failure," suggests that *persiflage*, though some might call it flippancy, rather than sober judgment, served to guide the pen. He who intimates that physicians too readily adopt the new forgets Hippocrates and his axiomatic advice that experiment is slippery and that the physician should hold fast to that that is good.

The fad of the individual or of the clique is not the fad of the profession, and the writer of the article is unfortunate in selecting the water-cure as the first fad he can recall, notwithstanding his apology that he has never personally gone through or seen that treatment. While this may give him the feeling that he is thus best fitted to speak of it dispassionately (like the book reviewer who never reads the work he is to review, because he might thus become prejudiced), it prevents his speaking as one with authority regarding the wider range of usefulness of hydrotherapy than that of a tonic to the nervous system.

Why the use of blue glass is brought forward as another medical fad is a mystery, as it was not introduced by a physician, and the practice never became even slightly prevalent with medical men.

For the writer to announce himself as a believer in the faith-cure is a privilege that must be willingly accorded him as, perhaps, a personal fad. That it is a fad of medical men collectively is a groundless assertion not justified by the hoary saying *ex uno disce omnes*.

The grape-cure, milk-cure, water-cure, and rest-cure are not fads, but definite methods of therapeutics having specified applicability in certain morbid conditions. The word cure is employed in the German sense, and not for the purpose of implying a panacea.

Medicine is taught in our colleges to-day with the endeavor to equip the student with the capacity for recognizing the existence and significance of the signs and symptoms of different diseases. It is also taught that remedies have certain definite actions, and that they should be used to combat the causes of disease rather than to overcome its symptoms. A failure to recognize these facts relegates medicine to a period antedating

that at which the writer of the article referred to began his professional career, making empiricism rather than science the rule and guide for the physician's practice.

#### THE REPORT OF THE STATE COMMISSION IN LUNACY.

The recently published report of the New York State commission in lunacy is a carefully prepared document that reviews the condition of each of the State hospitals for the insane and the operations of the State hospital, the exempted county, and the licensed private asylum systems. The commission does not think that the State hospitals are overcrowded, but recommends that provision be made for an increase of the present capacity in order to meet future demands upon their space. Attention is again called to the inequality in the salaries paid to the officers and attendants of the different institutions, and the recommendation is made that the Legislature make statutory provision for equality of compensation for all officers and employees of similar grades, particular attention being directed to the fact that where the service performed by women is the same as that by men, the compensation should be equal.

The report of the commission on the cost of maintenance at the different institutions showed such want of system that the matter is now undergoing investigation.

It is recommended that provision be made for the erection of detached buildings for attendants at each of the hospitals; that there shall be conferences at stated intervals between the commission and the managers or trustees of the State hospitals; that the employment of improper persons to convey public patients to these hospitals by superintendents of the poor be prohibited; that private patients be admitted to these hospitals at a maximum rate of ten dollars a week; that a special pathologist to conduct investigations for all the hospitals be appointed; that counties shall provide receiving pavilions for the detention of persons to be examined regarding their sanity, to be under the charge of a special officer appointed by the county judges; that agents be appointed to induce responsible relatives of insane persons to assume the expense of their maintenance in the hospitals; that the State be redistricted into hospital districts; that the indiscriminate visiting of insane patients be restricted; that the parole of patients be regulated by the commission; that special police powers be granted to particular officers of hospitals; and that the responsibility and power of the appointment and removal of officers and employees be vested in the superintendents.

The report contains the usual asylum statistics, and also a directory of all institutions in the State that care for the insane. The supervision of all of these institutions has been thorough, and satisfactory evidence is afforded by the volume of the important work performed by the commission.

#### A CHINAMAN'S GRATITUDE TO A PHYSICIAN.

DR. HORACE RANDLE, of the Tungshin Hospital, Chefoo, North China, relates in *Medical Missions* an instance of the

profound gratitude of the Chinese for successful medical treatment. One of the magnates of the place, named Wu, had been an enemy of the mission for several years, even advocating violence in order to expel the foreigners. But last October a change came over the man, in consequence of a serious and protracted illness. He was afflicted with an unusually large carbuncle upon his back, and all the native treatment he endured simply made matters worse and brought him down almost to death's door. Although he had repeatedly refused to consult the foreign doctor, pain and suffering finally led him to reluctantly admit Dr. Randle. That gentleman found the region of the left scapula occupied by a gangrenous mass, and the patient's general condition at a low ebb. The open surface was properly cleansed, then poulticed and dressed for a few days, suitable internal medication was furnished, and the patient was put on the road to recovery. Convalescence was slow, though steady. A change from enmity to friendship was likewise gradually effected. The patient was first shamed out of his hatred, and then, seeing the physician's manifest devotion and laborious attentions, became as emphatically grateful as he had before been antagonistic. When he had fully recovered, Mr. Wu caused a tablet to be engraved, painted blue, with gilded and carved characters expressive of his unstinted gratitude. Then a procession of his relatives and friends was formed at the patient's house, and proceeded to that of the physician, followed by two coolies bearing the tablet. The townspeople crowded after. When the destination was reached, a speech of presentation was made, and the tablet was nailed up over the front door by two carpenters who had been bidden to come for that purpose. Then an interchange of compliments took place. The inscription on the tablet was as follows:

"A Heart like Hsi-wen's.

"In early times, Doctor Fan Hsi-wen was a skillful and benevolent doctor whose heart constantly went out in healing and saving the suffering.

"Now there is one like him in the person of the physician from the distant West, where speech and customs have nothing in common with those of China.

"Last autumn I fell ill with a carbuncle and could not have lived to the winter. Dr. Lan (Randle) gave me healing medicine and cured me: though I was four months ill he made me well.

"This Dr. Lan has certainly the power of life and death in his hands.

"In the 18th year of Kangsu, the Recipient of Kindness, Wu-Shui, Respectfully records this."

#### MINOR PARAGRAPHS.

##### A NEW AND RAPID METHOD OF REMOVING THE UTERUS.

At a recent meeting of the Kansas City Academy of Medicine, as we learn from the *American Journal of Surgery and Gynecology*, Dr. Emory Lanphear presented a number of fibroid tumors, sarcomata, etc., removed by a new method of abdominal hysterectomy. The abdomen and vagina having been care-

fully sterilized, he makes an incision in the median line terminating as close to the pubes as possible, draws the uterus with one tube and ovary to one side, and applies a clamp to the broad ligament; a strong ligature is passed half an inch away from this, including the blood-vessels, and tied; the intervening tissue is then cut with scissors. Upon the opposite side the same procedure is carried out. When this has been done, the uterus (hitherto held down by the broad ligament) can be lifted up into the wound and separation from the bladder and rectum easily accomplished. These incisions, before and behind, are carried into the vagina, when a Kelly's or Folk's clamp is introduced through the vagina as close as possible to the uterus, its points reaching the ligature already tied in the broad ligament. As soon as it is properly applied it is closed, and its fellow clamp inserted upon the other side, when the uterus is quickly cut away with curved scissors. The pelvis is irrigated, the abdominal wound closed, and drainage made through the vagina as in cases of vaginal hysterectomy. The clamps are removed in forty-eight hours. The operation can be done in from twenty-five to thirty minutes, and is said to be much easier than even vaginal hysterectomy with clamps. On account of this rapidity and the good drainage secured, Dr. Langbehn thinks this operation can be done almost as safely as ovariectomy—certainly as safely as vaginal hysterectomy—and that it is much preferable to any method that leaves a pedicle or stump behind. He finds it is not necessary to unite the bladder to the rectum, as union takes place just as quickly without sutures as with them.

#### A DEPLORABLE SEQUEL OF A SUICIDE.

"THE autopsy, while not revealing that the young woman had the dread of maternity as an incentive to suicide, suggested that she might have been driven to the deed by remorse for recent conduct and had a reason for passing herself, in contemplation of suicide, as a married woman."

This horrible innuendo, printed in a newspaper, is the consolation that the young woman's afflicted parents receive! It is attributed to the coroner who officiated in the case, and up to the time of writing this paragraph we are not aware that he has repudiated it. It seems to be susceptible of more than one interpretation, but the public has put upon it the more obvious one, and current comment on it takes an angry tone—a tone that augurs well, we hope, for the movement in favor of substituting something like the Massachusetts system for that under which inquiries as to causes of death are now conducted in this State. In this case the dead girl's parents are entitled to the community's sympathy, and we believe they have it; at all events, it may be said for the relief of their feelings that the necropsy does not seem to have included the sort of examination that would be indispensable to the establishment of facts justifying, if anything could, a public statement intended to convey the meaning that is commonly understood to be the purport of the one we have quoted. The fact that the coroner in this instance is a physician makes the case a proper one for comment in a medical journal, and the fact that this physician is a coroner does not seem to us to exempt him from the obligation to confine his investigation to the task of ascertaining the cause of death, or from his professional duty not to reveal secrets of this nature.

#### A TALE OF A GLASS EYE.

ONE of the Rochester newspapers says that a physician of that city tells the story of his once having been summoned to the hospital late at night to assist his colleagues in the endeavor

to resuscitate a man profoundly narcotized with opium. One pet method after another having proved ineffectual, the conviction was forcing itself on the medical gentlemen that the patient was dead. "Finally," the story continues, "the eldest of the party, a practitioner of thirty years' standing, walked over to the supposed corpse and, lifting the eyelid, looked long and searchingly at the eye. When he let go he at once proceeded to gather up his instruments preparatory to leaving. I thought that I could detect a slight respiration, though very faint, and asked him why he was leaving. 'The man's dead,' he answered, 'look at his eye.' I turned to make an examination, and sure enough the eyeball had a strangely glassy appearance, noticeable in cases of death by opium poisoning. I, too, was about to turn away when, to the surprise of all, out slid the eye and down it fell to the floor. It was glass. No one said anything, but we continued to work on the subject until nearly morning and we brought him around all right."

#### THE PROPOSED CROTON WATER COMMISSION.

THE New York Academy of Medicine's amendments to the Assembly bills authorizing the acquirement of the Croton watershed by the city provide for the creation of a Croton water commission consisting of the commissioner of public works, the commissioner of health, and a member of the State board of health (to be appointed by the Governor on the recommendation of the said board of health), together with two Croton water commissioners, one of whom shall be a resident and citizen of the city and county of New York, to be appointed by the Governor on the recommendation of the executive committee of the Chamber of Commerce, and the other of whom shall be a civil engineer skilled in sanitary science, to be appointed by the Governor on the recommendation of the American Society of Civil Engineers of the City of New York. This commission is empowered to effect any acquisition or extinguishment of interest in the real estate concerned as may be necessary for "the sanitary protection of all rivers and other water-courses, lakes, ponds, and reservoirs in the counties of Westchester, Putnam, and Dutchess, so far as the same now are, or hereafter may be, used for the supply of water for the city of New York."

#### ABERRANT CHORDÆ TENDINÆ.

IN the February number of the *Revue de médecine* there is a very interesting article by Dr. Henri Huchard on the subject of aberrant chordæ tendinæ (*tendons aberrants du cœur*), i. e., chordæ tendinæ which, instead of running from a columna carnea to be inserted into the valve, extend from one point to another of the ventricular wall. M. Huchard maintains that when they are long and stretch directly across the blood-current in the aortic area their existence may be detected during life by means of certain more or less musical murmurs, and he reports five cases in which the diagnosis was confirmed at the autopsy. In one of these cases the wandering cord was found to have occasioned coagulation about it. Generally these formations are congenital; occasionally they seem to be of pathological origin, chiefly by sclerosed atrophy of the trabeculæ. They have not been observed in the right chambers of the heart.

#### THE REVIVAL OF THE THYMUS.

AT a recent meeting of the *Société médicale des hôpitaux*, reported in the *Union médicale* for February 21st, M. Marie mentioned a revival of the thymus as an example of the compensatory hypertrophy often undergone by certain of the blood-vascular glands in consequence of disease of some other of their



number. He had observed it in myxœdema, in acromegaly, and in exophthalmic goitre. In myxœdematous idiocy there might be simply persistence of the thymus due to absence of the thyroid or to changes in that organ occurring early in life; but when myxœdema came on in adult life the thymus, which must long before have undergone involution, might become re-vivified. In acromegaly, in which the pituitary gland was affected, and probably the thyroid also, the existence of the thymus was generally observed.

#### ADVANCEMENT OF THE ROUND LIGAMENTS.

At a meeting of the *Association française pour l'avancement des sciences, section de chirurgie* held in September, 1892 (*Revue de chirurgie*, February, 1893), M. Chalot described his method of performing this operation, which he thinks is simpler and surer than the usual procedure. He opens the inguinal canal for nearly its whole length, about four centimetres, so that the ligament is easily found, even in fat women. He dissects each ligament quite free as far as the internal ring, sometimes opening into the peritoneal cavity. The uterus is not replaced during the operation until it is done by energetic traction on both ligaments. Each ligament is fixed with sutures through the whole length of the inguinal canal. No pessary is worn after the operation. The author reports good results in six cases, in one of them after the lapse of fourteen months.

#### NEW PREPARATIONS OF MYRRH.

In the *Centralblatt für klinische Medizin* for February 25th there is an abstract of an article by Dr. M. Kohn, published in the *Münchener medicinische Wochenschrift*, in which the author reports good results in the treatment of eczema narium with an ointment of myrrh, also in that of both simple and fœtid atrophic rhinitis with tampons imbued with the ointment. The use of myrrh as a corrigent in the creasote treatment of pulmonary phthisis is said to have proved satisfactory. The preparation employed was myrrhoin (a mixture of one part of myrrh and two parts of oil). Capsules each containing three tenths of a gramme of creasote and two tenths of a gramme of myrrhoin were very well borne by consumptives.

#### MAMMARY CANCER AND THE STERNUM.

In the *Gazette des hôpitaux*, 1892, No. 88, there is an article by M. Verdié on the spread of carcinoma from the mamma to the sternum and its recurrence in that bone after ablation of the breast. From an abstract given in the *Centralblatt für Gynäkologie* it appears that M. Verdié regards implication of the sternum as a concomitant or sequel of mammary cancer as of more frequent occurrence than is generally supposed. He thinks that the bone should be examined as carefully as the axilla, and that the presence of secondary nodules on its surface is a contra-indication to removal of the breast.

#### A HINDU METHOD OF "PURIFYING" MEDICINAL ROOTS.

In an article on The "Earth-sugar" Root of the Tamils (the root of *Morua arenaria*), published in the *Pharmaceutical Journal and Transactions* for January 7th and reprinted in the *American Journal of Pharmacy* for March, Mr. David Hooper describes a somewhat peculiar process by which the Hindus "purify" medicinal roots. A clean cloth is tied over the mouth of a jug filled with equal parts of cow's milk and water. The bruised root is laid on the cloth and covered with another vessel, inverted. The contents of the jug are then boiled, and the

vapor from them is supposed to purify the root, which is afterward dried and finely powdered.

#### POST-MARITAL AMBLYOPIA.

In the last number of the *Archives of Surgery* Mr. Jonathan Hutchinson gives an account of three cases of this affection, which is sometimes called Burns's amaurosis. The salient condition consists in a failure of vision, of greater or less degree, due to sexual excess. In some respects, such as the tendency to recovery and freedom from relapse, this affection conducts itself like amblyopia from tobacco. The latter, however, is less rapid in its progress and is less severe. Although recovery is the rule in regard to both groups of cases, it is possible in both that the affection may proceed to complete and irremediable loss of sight.

#### A LONDON BANQUET IN HONOR OF VIRCHOW.

On Thursday evening, the 16th inst., according to an announcement in the *Lancet*, a subscription dinner was to be given in London in honor of Professor Virchow, who in the afternoon of that day was to deliver a lecture before the Royal Society on The Position of Pathology among the Biological Sciences.

#### A CONGENITAL HERNIA IN A FUNICULAR HYDROCELE.

At a recent meeting of the Paris *Société de chirurgie*, reported in the February number of the *Revue de chirurgie*, M. Phocas, of Lille, mentioned two cases that he had seen of congenital funicular hydrocele in which, on opening the sac of the hydrocele, a hernial sac was found projecting into it. In one of the cases the tumor had the appearance of a two-lobed hydrocele. Each patient was about nine years old.

#### HICCUGH AND HEREDITARY SYPHILIS.

According to Carini (*Internation. klin. Rundschau*, 1893, Nos. 1, 2, 3, 4; *Union médicale*, February 25, 1893), hiccough in the new-born is to be regarded as a symptom of hereditary syphilis. It is of rather common occurrence, and is one of the earliest signs of the disease, coming on during the first few hours or days after birth, sometimes before the coryza. It lasts two or three weeks. The author's views are supported by numerous cases and by the effect of antisyphilitic treatment on the hiccough.

#### A THIRD ATTACK OF MEASLES.

M. DUCHESNE related at a recent meeting of the Paris *Société de médecine et de chirurgie pratiques* the case of a man, forty-two years old, who had three well-marked attacks of measles within the space of two years. Some authors, he remarked, according to the report in the *Progrès médical*, denied the possibility of the recurrence of the disease. In the discussion M. Dignat reported a case of two attacks at an interval of eleven months.

#### CHLORALOSE.

At a recent meeting of the Paris *Société de biologie*, reported in the *Progrès médical* for February 4th, M. Charles Richet continued an account of his and M. Hanriot's study of chloralose, a derivative of glucose and chloral. This compound is said to have the property of annulling sensibility to pain while not affecting the sense of touch, also to cause psychical blindness. It does not seem to have been used on the human subject yet.

## ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 14, 1893:

DISEASES.	Week ending Mar. 7.		Week ending Mar. 14	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	15	4	11	4
Typhoid fever.....	15	4	24	7
Scarlet fever.....	199	16	158	21
Cerebro-spinal meningitis.....	8	4	5	7
Measles.....	105	4	118	9
Diphtheria.....	101	26	103	41
Small-pox.....	9	2	10	2

**The Medical Association of Georgia.**—The forty-fourth annual session will be held at Americus on the 19th, 20th, and 21st of April, under the presidency of Dr. A. A. Smith, of Hawkinsville. The other officers of the association are Dr. George J. Grimes, of Columbus, and Dr. Robert H. Taylor, of Griffin, vice-presidents; Dr. D. H. Howell, of Atlanta, secretary; and Dr. E. C. Goodrich, of Augusta, treasurer.

**The French Surgical Congress.**—The seventh session of the *Congrès français de chirurgie* will be opened in Paris on Monday, April 3d, under the presidency of Professor Lannelongue. The subjects announced for discussion are Fibrous Tumors of the Uterus and The Surgical Treatment of Tubercular Affections of the Foot.

**The Medical Profession in Italy** is overcrowded, especially in Naples, where there is a physician to every five hundred and ten inhabitants, so that, according to the *Riforma medica*, medicine is the least remunerative of all the learned professions.

**The Richmond Academy of Medicine and Surgery.**—A discussion on puerperal septicemia, to be opened by Dr. J. Michaux, was the special order for the meeting of the 14th inst. The subject for the next meeting is the management of abortion.

**The Paris Faculty of Medicine.**—The *Revue de chirurgie* announces that Dr. F. Terrier, one of its editors, has been made professor of operative surgery.

**The Death of Dr. Edward Houghton Jones**, the assistant sanitary superintendent of the city board of health, is announced as having occurred on Sunday, the 12th inst. Dr. Jones had for many years served as a city sanitary official, and always most creditably. He was seventy-three years old at the time of his death, which is attributed to disease of the heart.

**The Death of Professor Benjamin Ball**, of the Paris faculty of medicine, a well-known alienist, is reported as having taken place on the 23d of February.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 5 to March 11, 1893:*

TAYLOR, MARCUS E., Captain and Assistant Surgeon, will be relieved from duty at Vancouver Barracks, Washington, at the expiration of his present leave of absence, and will report in person to the commanding officer, Fort Logan, Colorado, for duty at that post.

STILES, HENRY R., First Lieutenant and Assistant Surgeon, will be relieved from duty at Jefferson Barracks, Missouri, on receipt of this order at that post, and will report in person to the commanding officer, Fort Omaha, Nebraska, for duty at that post.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending March 3, 1893:*

MURRAY, R. D., Surgeon. When relieved, to proceed to Key West Quarantine for duty. March 1, 1893.

BAILLACHE, P. H., Surgeon. To proceed to New York for duty. February 13, 1893.

FURVIAN, GEORGE, Surgeon. Detailed as Chairman of Board of Ex-

aminers. February 13, 1893. To inspect Reedy Island, Delaware River. February 23, 1893.

HUTTEN, W. H. H., Surgeon. To proceed to Solomon's Island, Md., as Inspector. February 6, 1893. When relieved, to proceed to Detroit, Mich., for duty. February 13, 1893.

HAMILTON, J. B., Surgeon. Detailed as Chairman of Board to prepare Quarantine Regulations. February 16, 1893. Detailed as Chairman of Board to examine officer of Revenue-Marine Service. February 28, 1893.

AUSTIN, H. W., Surgeon. Detailed as member of Board to prepare Quarantine Regulations. February 16, 1893.

GASSAWAY, J. M., Surgeon. Detailed as member of Board of Examiners. February 13, 1893.

STONER, G. W., Surgeon. To proceed to Baltimore, Md., for duty. February 13, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. Detailed as Recorder of Board to prepare Quarantine Regulations. February 16, 1893.

WERTENBAKER, C. P., Passed Assistant Surgeon. Detailed as Recorder of Board to examine officer of Revenue-Marine Service.

CONDUCT, A. W., Assistant Surgeon. Ordered to examination for promotion. February 14, 1893.

HUSSEY, S. H., Assistant Surgeon. Ordered to examination for promotion. February 14, 1893.

PERRY, J. C., Assistant Surgeon. Ordered to examination for promotion. February 14, 1893. To proceed to Savannah, Ga., for temporary duty. February 25, 1893.

SMITH, A. C., Assistant Surgeon. Ordered to examination for promotion. February 14, 1893.

ROSENAU, M. J., Assistant Surgeon. To proceed to Hamburg, Germany, for temporary duty. February 14, 1893. When relieved, to proceed to Antwerp, Belgium, for duty. February 25, 1893.

NYDEGGER, J. A., Assistant Surgeon. To proceed to Charleston, S. C., for temporary duty. February 24, 1893.

EAGER, J. M., Assistant Surgeon. To proceed to Key West, Fla., for duty. March 1, 1893.

GODFREY, JOHN, Surgeon. When relieved, to proceed to San Francisco, Cal., for duty. February 13, 1893.

IRWIN, FAIRFAX, Surgeon. Detailed for duty in office of the U. S. Consul, Marseilles, France. February 25, 1893.

WHEELER, W. A., Surgeon. Detailed as Recorder on Board of Examiners, February 13, 1893. Detailed as member of Board to prescribe Quarantine Regulations. February 16, 1893.

WASDIN, EUGENE, Passed Assistant Surgeon. To proceed to Baltimore, Md., for temporary duty. February 23, 1893.

WHITE, J. H., Passed Assistant Surgeon. To proceed to Hamburg, Germany, for duty. February 27, 1893.

CARRINGTON, P. M., Passed Assistant Surgeon. Granted leave of absence for seven days. March 1, 1893.

WILLIAMS, L. L., Passed Assistant Surgeon. When relieved, to proceed to Charleston, S. C., for duty. February 14, 1893.

BRATTON, W. D., Passed Assistant Surgeon. Detailed as member of Board to examine officer of Revenue-Marine Service. February 28, 1893.

KINYON, J. J., Passed Assistant Surgeon. Detailed as member of Board to prepare Quarantine Regulations. February 16, 1893.

GUITÉAS, G. M., Passed Assistant Surgeon. To proceed to Gulf Quarantine Station for duty. February 23, 1893.

#### Society Meetings for the Coming Week:

MONDAY, March 20th: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, March 21st: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Society of the County of Kings; Ogdensburg Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, March 22d: New York Academy of Medicine (Section in Laryngology and Otolaryngology); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical So-

ciety of the County of Albany; Philadelphia County Medical Society.

THURSDAY, March 24: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, March 24th: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, March 25th: New York Medical and Surgical Society (private).

## Letters to the Editor.

### THE UNAUTHORIZED USE OF AN AUTHOR'S NAME.

March 8, 1893.

To the Editor of the New York Medical Journal:

SIR: An outrageous use of my name and my contribution to your Journal is being made without my knowledge or consent by the so-called "Mackeown's Eye-testing Rooms," of this city, in the form of an advertisement of that enterprise.

I have instructed my attorney to take the matter in hand, and I desire that you give this note publicity in your Journal.

A. L. RANNEY, M. D.

## Reports on the Progress of Medicine.

### OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

(Continued from page 258.)

**Lupus of the Cheek consequent on Tuberculous Lesions of the Nasal Mucous Membrane, through the Medium of a Lacrymal Fistula.**—Arnozan (*Arch. d'ophthal.*, November-December, 1891) formulates his conclusions as follows: 1. Certain cases of lupus of the cheek are developed around an active or cicatrized lacrymal fistula. 2. In these cases the fistula facilitates the exit of tuberculous products from within the nasal cavities, and is merely the remote consequence of a tuberculous lesion of the nasal mucous membrane which has caused obstruction of the nasal canal. 3. A rhinoscopic examination and local treatment should complete the work of the dermatologist and ophthalmologist.

**The Pathogeny and Treatment of Diseases of the Lacrymal Passages.**—Gillet de Grandmont (*Arch. d'ophthal.*, November-December, 1891) makes a strong plea for a careful examination and treatment of the nasal fossæ, as well as of the eye and lacrymal passages, in all cases. Bacteriology plays an important rôle here. Affections of the lacrymal passages are frequent results of the eruptive and infectious fevers. When diseases of the lacrymal passages are not the result of traumatism, they arise from bacteriological causes and require anti-septic treatment.

**The Microbic Origin of Keratitis.**—Gillet de Grandmont (*Arch. d'ophthal.*, March, 1892) gives the results of his investigations as follows: 1. If the bits of tissue removed by scraping from a corneal ulcer are placed in a tube on the inclined surface of a peptonized agar solution and the tube is placed in an oven at 37° C., at the end of from one to four days there appears on the surface of the agar at the point touched by the platinum

needle a small opalescent spot, which gradually increases in size, forms a globule like a grease-spot, and gradually extends over the whole surface of the agar. 2. If a particle of this whitish mass is introduced into another tube of nutrient gelatin a similar culture is obtained, and this experiment may be repeated an indefinite number of times. 3. If a particle of this culture is introduced beneath the epithelium of an animal's cornea, there results more or less extensive ulceration of the cornea, but always proportionate to the quantity of material inoculated. A grayish infiltration surrounds the ulcer and grows in breadth and depth. Particles of these experimental ulcers furnish fertile cultures of organisms similar to those used in the inoculation. 4. The bacteriological examination of the virulent product shows a pure culture of joined micrococci, diplococci, streptococci, and staphylococci.

**Foreign Bodies in the Lens; Indications for their Removal.**—Ierson (*Arch. d'ophthal.*, March, 1892) draws the following conclusions: 1. The presence of a very small foreign body in the lens does not always demand immediate intervention, but does demand constant supervision. 2. Immediate intervention is demanded when the foreign body is voluminous, or when its position may change, or when the first sign of infection appears. 3. Intervention is demanded if the opacity of the lens increases so as to obscure the position of the foreign body. 4. Intervention should consist in a large incision in the cornea with iridectomy, so as to admit of removal of the entire lens with the foreign body. 5. The incision should be so made that its center corresponds to the point of corneal circumference nearest the position of the foreign body. 6. The magnet or electro-magnet should only be employed when the foreign body is iron or steel, and lies in the superficial laminae of the lens.

**Reid's Pocket Ophthalmometer.**—Higbet (*Arch. d'ophthal.*, March, 1892) here describes the little instrument devised by Dr. Reid, of Glasgow. The instrument consists of an objective of short focus, a rectangular prism neutralized in the visual axis by a smaller prism, and a long tube with a Ramsden ocular or eye-piece at the external end and an objective at the internal end, with crossed threads at its focus. In front of this objective is a birefracting prism. By this arrangement the corneal image is clearly seen only when the principal focus of the objective coincides with the corneal surface. The object is formed by a circular disc, fixed on the side of the rectangular prism, in front of the source of light. The corneal image of the illuminated disc is first magnified ten times by the objective, then doubled by the birefracting prism, and the two images are seen so distinctly that the contact or the overlapping of their adjacent edges may be distinguished by simply rotating the long tube. In using the instrument, the disc on the side of the instrument must be exactly in the focus of the objective. Then hold the instrument in the left hand, which rests on the forehead of the patient, and turn the disc on the side of the instrument toward the light of a window, or a gas flame, on the right of the observer. The light reflected by the prism, after traversing the objective, is reflected by the corneal surface. This virtual corneal image of the disc, which has the form of a white ring, becomes a real image at the principal focus of the objective, and, by means of the birefracting prism, is seen by the observer as a double image when the principal focus of the objective coincides with the corneal surface. The eye of the patient is directed toward the central luminous point, and when the setting at the point of the instrument is well made, the part of each circle corresponding to the adjacent edges should be distinctly seen.

**Probable Tuberculosis of the Lacrymal Gland.**—De La-personne (*Arch. d'ophthal.*, April, 1892) gives in detail the report



of a case, occurring in a woman aged thirty-two, who for three months had had some difficulty in moving the right upper lid, with the development of a small tumor at the supero-external part of the orbit. This tumor was small, flattened on the globe, and extended backward into the orbit. It was adherent to the orbital margin, was of firm consistence, and apparently lobulated. Five years before, the patient had been treated for some pulmonary trouble, characterized by frequent hæmorrhages, febrile attacks, and rather rapid emaciation—all of which symptoms eventually disappeared. An examination of the chest showed nothing but a slight roughness of breathing at the apex of the left lung. The tumor was removed and found to involve the lacrimal gland, and the wound healed in ten days. One year later the patient was seen, and there was no trace of any return of the growth. The tumor was as large as a large almond, was hard, lobulated, and grayish-pink in color. A diagnosis had been made of adeno-sarcoma of the lacrimal gland, and all the macroscopic signs confirmed it. The microscope showed that most of the substance of the tumor consisted of "epithelioid" cells; but external to the lobules involved, within the thickness of the conjunctival pits, there were many tuberculous follicles, which were probably developed within the lymphatic vessels. The fibrous envelope of the gland showed a diffuse infiltration of embryonic cells. No tubercle bacilli were found.

**The Modern Operation for Cataract.**—Landolt (*Arch. d'ophthal.*, September, 1892) makes the following résumé of the subject: The extraction of cataract in these days is much less dangerous than formerly. This progress is not due to changes in the method of operating, nor to a more complete knowledge of the disease, but to the discovery of cocaine, which, by its local anæsthetic effect, has sensibly reduced the danger arising from intractability of the patient, and still more to modern antiseptics. This does not necessarily mean that all cases of cataract may be attacked with impunity, with the same ease, and by the same simple procedure. There will always be material differences in the opacity of the lens in different cases, and according to the nature of these differences must the choice in the method of operating be decided. The dangers of the operation have been considerably reduced, and to about the same extent for all forms of cataract. For senile, ripe, uncomplicated cataracts the dangers have been reduced to almost nothing. Incomplete or unripe and complicated cataracts, however, always demand special precautions as to method of operating and subsequent treatment. Hence the method of operating should be modified according to the nature and necessities of the case.

**Lymphangeiectatic Fibroma of the Optic Nerve.**—Rohrer (*Arch. d'ophthal.*, September, 1892) reports an interesting case, occurring in a child aged three years and a half. The child had a strabismus convergens in the right eye, with marked protrusion of the eyeball. There was a hypermetropia of D. 5.50, and marked papillary stasis. Palpation could not discover any growth back of the eye. A month later both the squint and the exophthalmia had increased, and a tumor could be made out behind the eye and along the external side of the orbit. A long, curved incision was made through the ocular conjunctiva, from above downward, near the external margin of the cornea. The external rectus muscle was divided through its tendinous attachment, and the eyeball pushed aside. The finger was then introduced, and a neoplasm discovered closely connected with the optic nerve. The optic nerve was divided close to the eyeball, and by means of curved scissors the tumor was dissected free from its attachments and removed. The cavity was then washed out, the eye restored to position, the tendon of the external rectus muscle stitched in place, and the conjunctival wound was then closed by sutures. The case healed kindly, and six

months later there was no return of the growth. The eyeball was slightly atrophied and convergent. The tumor, on examination, proved to be a fibroma, with enormous lymphangeiectatic spaces developed between the fibers.

**A Fixed Optometric Ophthalmoscope.**—Parent (*Arch. d'ophthal.*, September, 1892) has devised a modification of his former instrument as follows: The source of light, a small petroleum lamp surrounded by a muff, is part of the instrument, being fixed at the end of an arm which, like the mirror, revolves in the horizontal plane. A convex lens of D. 15, colored blue, mounted in a standard, runs on the same arm and can be placed at any distance, so as to send divergent, parallel, or convergent rays of light upon the plane mirror of the instrument. The ocular and objective are multiple and may be interchanged so as to admit of examining the fundus with different degrees of magnifying power. All the movable parts of the instrument are mounted in a toothed rack. Behind the mirror are sixteen concave cylindrical lenses, which can be rotated from 0° to 180°. The astigmatism of the patient is determined by approaching the eye-piece to the inverted image until parts of vessels or whole vessels are distinctly visible. Then the axis of the concave cylinders is placed perpendicularly to those parts of the vessels which are distinctly seen, and the disc of the cylinders is then turned until all the vessels are seen with equal distinctness.

**The Origin of Certain Corneal Opacities following Extraction of Cataract.**—Mellinger (*Arch. für Ophthal.*, xxxvii, 4) draws the following conclusions from his experiments as to the effects of solutions of cocaine and mercuric bichloride:

1. Sublimate solutions of the strength of 1 to 5,000, in contact with the anterior chamber for a short time, cause temporary parenchymatous opacity of the cornea. If, however, a portion of the solution remains in the anterior chamber, there results an intense and permanent parenchymatous opacity in the cornea.

2. Cocaine alone causes no corneal opacity, but its presence in the anterior chamber aids the formation of the opacity due to the sublimate solutions, by rendering the endothelium porous to fluids and thus opening the way for the effects of this fluid upon the corneal parenchyma. Moreover, it lowers the intra-ocular tension, aids the occurrence of corneal collapse, and thus facilitates the entrance of the sublimate solution into the anterior chamber.

**Toxic Amblyopia.**—Groenouw (*Arch. für Ophthal.*, xxxviii, 1) draws the following conclusions from his investigations:

1. If, in testing the field, defect for red only is found, it is probably a case of toxic amblyopia. It is possible, however, that if the defect for red is very small, the case might be regarded as an axial neuritis.

2. If defect for white is present, and the red defect is a horizontal oval of a certain size, the case may be one either of retrolubular neuritis or of toxic amblyopia. If, however, the defects for both white and red are of the same size, it is probably a case of axial neuritis.

3. In toxic amblyopia the scotoma is very variable, while in axial neuritis it is absolute and unchangeable.

4. Peripheral limitations of the field for white or colors point to retrolubular neuritis. The optic-nerve atrophy met with in toxic amblyopia needs no differential diagnosis, as it occurs only after long years of amblyopia.

5. In toxic amblyopia, the process attacks directly or indirectly the retina or the optic nerves, chiasm, or optic tracts, or it is located in the cortex. Of these three possible locations, Groenouw thinks that no sufficient proof has been offered for the location of the lesion in either the retina or the cortex, and he therefore points to the nerves, chiasm, or tracts as the loca-

tion of the lesion, and thinks that the ophthalmoscopic evidence is in favor of this view.

**Senile Changes in the Uveal Tract.**—Kerschbaumer (*Arch. für Ophthal.*, xxxviii, 1) concludes her investigations as follows:

1. The pigment epithelium undergoes changes which are partially hyperplastic and partially degenerative.
2. The vitreous lamella of the chorioid becomes thickened and loses its brilliancy.
3. The thickening is either homogeneous or in groups of granules which form the beginning of the so-called chorioidal glands. The latter changes are more common in the equatorial region and around the optic nerve. They are generally round or oval and tend to coalesce, but they remain few and isolated.
4. The walls of the vessels become very rigid, and in many instances so thickened that the lumen is obstructed or ceases to exist, and the vessels are changed into cords. In the choriocapillaris there are often relatively large spaces in which the vessels have been obliterated.

**Fædchen Keratitis.**—Hess (*Arch. für Ophthal.*, xxxviii, 1) states as his opinion that in Fædchen keratitis the corneal epithelium takes an important part in the formation of the threads or lines. In addition to the epithelial cells, the subepithelial tissue also takes part in the process. He thinks it also possible that coagulated fibrin or threads of mucus may become attached to a corneal thread or fiber. He admits that the whole subject is still decidedly unsettled.

**Suppuration of the Vitreous due to Cicatricial Prolapse of the Iris.**—Wagenmann (*Arch. für Ophthal.*, xxxviii, 1) draws the following conclusions from his observations: The purulent infiltration of the vitreous is caused by recent superficial infection in the cicatrized prolapsed iris, which has maintained more or less of a fistulous character. Through this fistulous opening the cocci find their way into the interior of the eye, and not through the medium of the vessels. In some of the cases the streptococci seem to possess an especially malignant character, as evidenced by the violence of the inflammation. Wagenmann regards these cases as entirely ectogenous in character.

**Observations on the Macula Lutea.**—Johnson (*Arch. of Ophthal.*, xxi, 1) has arrived at the following conclusions: 1. When observed in a certain way, the macular ring in its entire circumference can be seen in every person under thirty-five years of age, and frequently, though with diminishing frequency, over that age. If the source of illumination be gradually lowered, the reflection from the fundus decreases more rapidly than that from the margin of the macula, so that a period arrives when more light is reflected from the latter than from the general fundus, and at that moment the ring appears. 2. The macula is invariably circular, and probably corresponds to the extreme limit of the macular region. 3. The ring is without doubt due to the cup-shaped dip of the macula. Seeing the ring in almost every person, and being thereby able to determine the limit of the macular region, it may prove of practical value in diagnosing whether a lesion or defect is situated within or without the region of acute vision.

**The Etiology of Inflammation of the Eye after Injury with Foreign Bodies.**—Poplawski (*Arch. of Ophthal.*, xxi, 1) sums up the results of her studies as follows: Eight of the twelve eyeballs examined showed microbes. These were without exception bacilli, and each case showed but a single variety, so that there was in no case a mixed infection. The bacilli always lay in the medium which contained the foreign body—viz., the vitreous—and, in spite of careful searching, were never found in the anterior chamber, iris, retina, or chorioid. In the vitreous they were confined to a small locality, almost always immediately surrounding the foreign body. In one case the lens also contained bacilli, but here the lens capsule was rup-

tured, and as the bacilli also lay near the posterior surface of the lens, it is possible that they were carried into the lens with the pus in a purely mechanical way, and there proliferated. Either these bacilli entered the eye with the unclean splinter and there developed and multiplied, and by their pathological processes caused panophthalmitis, or they were present in the conjunctival *cul de-sac*, passed into the eye by the canal formed by the foreign body, and there produced the panophthalmitis.

**A Statistical Review of the Proportion and Cause of Blindness in Thirty-two Thousand Eyes consecutively treated in the Jefferson College Hospital.**—Hansell and Bell (*Arch. of Ophthal.*, xxi, 1) summarize the results of their investigation as follows: Attention is called to—1. The extremely low proportion of blind eyes to the aggregate of eyes examined. 2. The fact that liability to blindness in males is one hundred per cent. greater than in females. 3. The percentage of males blinded from surgical causes is only slightly higher (three per cent.) than from medical causes, but in females eyes blinded from medical causes are greatly in excess. 4. The left eye is ten per cent. more frequently the seat of fatal disease than the right eye. 5. The third decade (twenty to thirty years) of human life far exceeds all others in furnishing subjects of disease or injury fatal to sight. 6. Traumatism, including unsuccessful cataract operations, gunshot wounds, foreign body in the eye, and dislocated lens, was responsible for nearly thirty per cent. of the total number of the cases of blindness.

**Objective Strabismometry.**—Maddox (*Arch. of Ophthal.*, xxi, 1) makes use of the following plan in office strabismometry: On the wall is a horizontal board with a candle in the center, and marked to the right and left therefrom in metre angles or degrees, or both, for a distance of one metre. The figures to the right are black and those to the left red. A string, one metre long, is fixed by one end to the center of the board. The patient is placed opposite the candle at the distance of one metre, the string being raised to measure the distance, and then allowed to drop. While the patient is told to look at the candle, the observer places his own head a little lower than the imaginary line from the patient's squinting eye to the candle, but in the same vertical plane with it, so as to look into the said eye from the distance of about a foot. At once the amount of squint is roughly guessed by the position the reflected image of the candle occupies on the cornea. The sound eye is then covered to let the squinting one look at the candle, and while it does this the position of the corneal image is carefully noted. Then the good eye is uncovered, and the patient is told to look at the number on the board which has been guessed as the probable measure of the squint. If correct, the corneal image will now occupy the same position on the squinting eye that it did when the best eye was covered and the squinting eye was fixing the flame. If the guess is short of the mark, he is told to look at the next figure, or the next still. If the guess is over the mark, he is directed to figure less. The figure settled on gives at once the measure of the squint in its primary deviation. To measure the secondary deviation, cover the fixed eye with the hand, so as to turn the squinting eye into the fixing one. The patient is then told to look at the same number, but on the opposite side of the candle. On momentarily uncovering the covered eye, the corneal image will be seen in its fixation position if the secondary squint is equal to the primary. In eyes that have no central fixation the secondary deviation can not be measured. To test for concomitancy, the patient's head should be rotated twenty or thirty degrees to the right and then to the left, and the squint measured in each of these positions.

**Papilloma of the Conjunctiva encroaching on the Cornea.**—Sims (*Arch. of Ophthal.*, xxi, 1) reports the histories of two such cases with the microscopic appearances. The two tumors

were identical in structure, consisting of numerous papillae, each containing a loop of blood-vessels, surrounded by layers of epithelial cells. Little connective tissue was to be seen, except a thin sheath round the vessels, and the line of demarcation between this tissue and the internal layer of epithelium was well marked throughout. The epithelial layer was increased three times in thickness.

#### Optic Neuritis after Measles and Intermittent Fever.—

Woods (*Arch. of Ophth.*, xxi, 1) thinks that cases of blindness after measles seem to be of two kinds—1. Those showing no eye lesions until late in the history of the case. 2. Those with marked neuritis from the beginning. The former are probably due to some cerebral lesion, probably vascular, with consecutive nerve disease; the latter are due to basilar meningitis. The most natural explanation of their connection with measles seems to be that this disease lowers the powers of resistance of the tissues, and renders secondary infection easy.

**The Treatment of Trachoma.**—Jæesche (*Arch. of Ophthal.*, xxi, 1) thinks that Himly's fenestrated forceps is well adapted for pressing out the follicles. If the trachoma be *fresh*, with prominent lymph follicles and moderate swelling of the conjunctiva, it is sufficient to seize the conjunctiva in such manner that one branch of the forceps lies in the retrotarsal fold and the other at the margin of the lid. The forceps is then closed with some force and drawn over the conjunctiva in such a way that not only the follicles are pressed out, but the entire swollen portion of the conjunctiva, with the hypertrophied papillae and the new-formed vessels, are thoroughly crushed. In the second stage, when the conjunctiva is markedly swollen and infiltrated and bleeds easily, the papillae are greatly hypertrophied, the follicles partly degenerated, repeated and energetic crushing of the conjunctiva is required. In the third stage, when the conjunctiva shows a fairly smooth, atrophic, bloodless surface, and the underlying tissue is infiltrated, thickened, and sclerosed—if the forceps is used in such cases, half-degenerated follicles escape from the depth of the conjunctiva in unexpected quantity. If all the roughness of the conjunctiva is removed, the worst cases rapidly improve. Cold applications should be made frequently, using either a sublimate solution or one of boric acid. After the second day, instillations of a two-per-cent. solution of silver nitrate are to be used.

#### The Treatment of Trachoma by the Expression of the Morbid Substance with a Roller Forceps.

—Knapp (*Arch. of Ophth.*, xxi, 1) describes the instrument devised by himself for the purpose as follows: The instrument is made according to the principle of the mangle. The branches of an ordinary, rather strong forceps divide at their ends like a horseshoe, the free space of which is occupied by a creased steel cylinder which rolls on pivots in sockets. A more recent modification has conical pivots, which dip into corresponding depressions, and the cylinders can be removed and reinserted. The rolling cylinder is twenty to twenty-five millimetres long and one millimetre to a millimetre and a half thick. It is made of steel, and can be taken apart to be cleansed. The mode of application is as follows: The patient is etherized, except in mild cases of superficial granular deposit. The upper lid is everted, seized at the convex border of the tarsus with an ordinary fixation forceps, and drawn over the eye, so as to expose the whole palpebrobulbar conjunctiva. The infiltrated part, if necessary, may then be superficially scarified with the three-bladed "sillonneur" of Johnson. One blade of the forceps is pushed deeply between the ocular and palpebral conjunctiva, the other is applied to the everted substance of the tarsus. The forceps is compressed with more or less force, drawn forward, and the infiltrated soft substance squeezed out as the cylinders roll over the surfaces of the fold held between them. This manœuvre is re-

peated all over the conjunctiva until the granules and the juice are completely pressed out of the tissue. The forceps passes two or three times over the same place, until the absence of resistance proves that all foreign tissue substance is removed. If the tarsal conjunctiva contains granules, one blade of the forceps is applied to the skin, the other to the conjunctiva, and the instrument is drawn across several times until all the granules have disappeared. The mucous membrane is then washed with a mild antiseptic. The lids and conjunctiva may swell considerably for a few days, but in the great majority of cases the recovery is rapid and free from irritation.

#### Further Experiments on the Lymph Streams and Lymph Channels of the Eye.

—Gifford (*Arch. of Ophth.*, xxi, 2) summarizes the results of his experiments as follows: 1. The ferricyanide and fluorescein methods do not give trustworthy results in determining the physiological currents of the eye. The lines upon which most stress has been laid can be obtained perfectly well in the dead eye. 2. Stilling's view that there is no outlet from the vitreous forward around the lens is incorrect. The zonula is freely permeable for solid particles, free pigment being carried regularly from the vitreous into the anterior chamber. The failure of the attempts to inject the anterior chamber from the vitreous is probably due to the closure of the chamber angle from the increased vitreous tension. It is probable that the fluid secreted by the ciliary processes, posterior to the zonula, divides into two portions, one part passing forward into the posterior chamber and thence through the pupil into the anterior chamber, the other passing back through the vitreous and out through the central canal of the optic into the tissues of the orbit. 3. There is no evidence of any current passing from the posterior chamber through the root of the iris. Pigment bearing leucocytes may pass into the latter from either posterior or anterior chambers, more readily from the latter, from which they sometimes pass clear through the iris into the posterior chamber. 4. There is no evidence of any current from the anterior chamber through the membrane of Descemet into the cornea. Pigment particles from the aqueous are taken up by the protoplasm of Descemet's endothelial cells. Experiments on both dead and living animals show a free connection for non-diffusible substances between Fontana's spaces and the circumcorneal veins. It is therefore probable that the greater part of the aqueous leaves the eye in this way. Other finer lymph channels lead from Fontana's spaces into the posterior layers of the cornea, into the perivascular spaces of the sclero-corneal junction, into the sclera, chorioid, and perichorioid space. Wherever these channels communicate with spaces in which there is a lower pressure than that within the anterior chamber, they must serve to some extent as outlets. 5. Between the retinal pigment epithelium and the layer of rods and cones is a tolerably well defined space, from which pigment passes freely into the retina, but hardly, or not at all, into the chorioid proper, except along occasional penetrating blood-vessels in the neighborhood of the optic nerve. 6. While certain facts—such as the regular passage of pigment and bacilli from Fontana's spaces into the cornea, and the progress of subconjunctival hemorrhages in the same direction, together with the impermeability of Descemet's membrane from behind—speak for the nourishment of the cornea from its periphery, the corneal lymph stream, if any exists, is too weak to perceptibly affect the diffusion of fluorescein or the progress of pigment particles through its tissues.

**Idiopathic Vitreous Hemorrhages.**—Spalding (*Arch. of Ophth.*, xxi, 2) thinks that in these cases the prognosis seems to be favorable. No perfect restoration of vision is possible, but useful vision is regained in a majority of cases. The etiology remains in doubt. So long as we exclude all myopic eyes, it



would seem as if some strain, or the suppression of habitual discharges, or actual overwork of the eyes, must be the exciting cause. As regards the treatment, he recommends the hypodermic use of pilocarpine hydrochloride, in doses of one twelfth of a grain, once a day for two weeks. If any dose produces weakening effects on the heart, the next dose may be diminished or omitted for two days. If no visible effect is produced, the dose may be gradually increased as high as one sixth of a grain. Mercurials may be used in some cases when the rarefaction of the vitreous ceases from any cause. Heurteloup's artificial leech is quite indispensable in the beginning of the attack. The constant current has been claimed as efficacious in some cases.

**A Traumatic Retention Cyst of the Conjunctiva.**—Lopez (*Arch. of Ophthalm.*, xxi, 2) reports a case of this nature in a man aged twenty-four. Up to twelve years of age the eyes were perfectly healthy. At that age he received an injury from the horn of a cow in the left orbital cavity, which was followed by a violent inflammation. He was taken to a hospital and an operation was performed, the nature of which he did not know. From that time a tumor commenced to form in this region, and has increased to its present size without causing any symptom except deformity. The tumor was conical anteriorly, and was covered by the ankylosed lids, the free borders of which could only be separated about four millimetres from each other. The tumor fluctuated, the sensation on palpation being that of a ball filled with fluid. There was a diverticulum toward the lacrymal sac. Near the inferior and external orbital margin was a sequestrum. The tissue joining the two lids was divided on a director, and the palpebral fissure was enlarged at both ends. The lids were then separated from the cyst wall with scissors. In this cutting, the cyst was opened, giving exit to a yellowish, transparent fluid, and at the bottom of the cyst cavity the eyeball was discovered in a perfectly healthy condition. A portion of the anterior cyst wall was removed, and in this were imbedded three pieces of dead bone. Sutures were then introduced to reduce the palpebral fissure to its normal size. At the end of a month the patient could count fingers.

(To be concluded.)

## Miscellany.

**Myxodema.**—At a recent meeting of the Edinburgh Medico-chirurgical Society, reported in the *Lancet* for February 25th, a discussion on this subject was opened by Dr. Byrom Bramwell, who had to deal with the clinical aspects of the disease. He thought it would be difficult to say anything new on the subject. The disease was common in Edinburgh and its neighborhood; so it was in other parts of Scotland and in the north of England. It was rare in Germany, where acromegaly was comparatively common. In America also it was rare. He thought there must be some atmospheric or telluric conditions determining its prevalence. It was not described as a distinct disease till 1873. It occurred most commonly in women. It was also seen in the form of sporadic cretinism in the child. The disease presented a remarkable contrast to exophthalmic goitre and acromegaly, but with the latter it had features in common. Myxodema began slowly and insidiously, the first symptoms being increased susceptibility to cold, inability to perspire, and lassitude. Dr. Bramwell then described the appearances characterizing the well-developed disease. In exophthalmia and acromegaly there was a tendency to excessive perspiration. In myxodema there was increased electrical resistance, the reverse being the case in exophthalmia. There was no more striking feature than the improvement in the mental condition during treatment, and Dr. Bramwell referred to a

sporadic cretin under treatment who had had only a thyroid and a half so far and yet her whole nature was transformed, and, whereas she had only grown two inches in the preceding two years, she had since grown an inch within five weeks. The mental slowness in myxodema was in great contrast to the excitability in exophthalmia. It was not uncommon for myxo-dematous patients to have to be sent to asylums. Sight and hearing were sometimes impaired. Myxo-dematous patients and cretins thrived best when their surroundings were warm. The actual body heat was low, and Dr. Bramwell showed charts illustrating this and the elevation of temperature which took place under treatment; in this also the disease contrasted with exophthalmia. In acromegaly a subnormal temperature was likewise present. In the patient he was treating with the thyroid the breasts became turgid, swollen, and painful.

Professor Greenfield then took up the pathology and morbid anatomy of the disease. His pathological connection with the subject had been of long standing. When he was pathologist to St. Thomas's Hospital he had made the post-mortem examination of the case under Dr. Ord which was the ground of his first report on the condition, and on which was founded the name "myxodema." The primary and most essential fact in the pathology was the atrophic change in the thyroid. There was little accurate knowledge as to the cause of the change. The functions of the gland were obscure; it was only certainly known that in some way it was concerned in the metabolic changes of the nutritive fluids, and that it had some relation to the elaboration of mucin. It probably secreted a material of the nature of a ferment which passed into the blood and stimulated the secretion of the skin glands and in some way acted upon the heart. In myxodema the gland was atrophied; in sporadic cretinism it might be almost absent. In exophthalmic goitre there was an exactly opposite condition—an enormous increase in its secreting structure and also of the colloid material in its spaces. In ordinary cystic goitre associated with cretinism there was an enormous increase in its substance. One should not regard the morbid appearance of the thyroid in myxodema as of too great importance or exclude other considerations in relation to its function. In myxodema the sweat glands and sebaceous glands acted defectively and the latter atrophied with other parts of the skin. The normal transpiration being deficient, the lymph seemed to stagnate and accumulate. That this was so seemed to be shown by the improvement seen after hot baths. Professor Greenfield then laid stress upon the altered reaction of myxo-dematous cases to tuberculosis. They showed a marked proclivity, while the manifestations of the process were greatly modified. The patients in five cases from which he showed specimens died from phthisis, as also one in a case of sporadic cretinism. The phthisis was characterized by its rapid course and the absence of the ordinary symptoms of tuberculosis. He thought the power of repair in myxodema was good, but asked for information. He had studied the material from seven cases of myxodema and one of sporadic cretinism. In all the thyroid was diminished in size; there was either generally or in parts an advanced condition of atrophy with fibrous overgrowth. In some all gland tissue had disappeared; in others the fibrous tissue was highly cellular; in one there was a lymphoid infiltration at parts. These changes and the changes in the epithelium were parallel to those seen in all wasting glands. In the arteries there were the changes found in all interstitial inflammations. In the skin there were marked changes in all the glandular elements and in the hair follicles; they showed various stages of atrophy. Often there was extensive deposit of pigment in the skin. The epidermis became very thin. The oedema was deeply situated. The change might be called a myxomatous degeneration of the tissue affected; but in the skin, in the tongue, and elsewhere there were sometimes areas of dense fibrous overgrowth. In the kidneys there were occasionally a swelling and pallor due to the presence of a myxomatous degeneration around the arteries at their division, and an extension of a myxomatous and cellular infiltration between the tubules in that position, while the cortex was normal. He had found no change in the nervous system, except in the peripheral nerves, in which there were frequently indications of a chronic neuritis. How far this was due to the disease he did not know. The lymphatic glands and suprarenal capsules were normal. A large number of photographs were shown by lime-light illustrating

the points of the paper, one of these being a section of the thyroid of an old man who died of cirrhosis of the liver, which showed changes exactly resembling those found in myxœdema. This communication was further illustrated by about fifty microscopical preparations and a number of naked-eye specimens from the cases that had been examined.

Dr. Lundie, whose part in the opening discussion was the treatment of the disease, gave a clear and concise *résumé* of the history of the treatment by thyroid injection and feeding. He used the treatment for the first time in November, 1891, and the patient had recovered. There was a relapse when the treatment was stopped, but recovery again took place by feeding. He gave one eighteenth of a sheep's thyroid daily. He referred to the recorded experience on the subject, and drew attention to the necessity of warning patients against unusual exertion at an early stage of the treatment.

Dr. Affleck referred to the former treatment by hot baths, rubbing, etc., and showed photographs illustrating the appearances before and after treatment. He thought we were yet only collecting information and that it was important that those who had cases should record them. They should inquire into the antecedents with a view to find out the etiology of the disease, for he thought there might be some underlying nervous condition interfering with the thyroid and leading to its atrophy. Some patients became insane. He thought Addison's disease presented an interesting analogy to myxœdema and suggested feeding with suprarenal capsules. The evidence in favor of thyroid feeding was overwhelming and he welcomed it as a most important contribution to modern therapeutics. He then showed a boy with sporadic cretinism who had immensely improved under treatment by ingrafting.

**Peritonitis and Bright's Disease.**—At a meeting of the Johns Hopkins Hospital Medical Society, held on November 7, 1892, a continued report of which is to be found in the January-February number of the *Johns Hopkins Hospital Bulletin*, Dr. Flexner presented specimens from a case of peritonitis attributed to *Proteus vulgaris*. In the discussion Dr. Welch said that the case was interesting with reference to the general subject of the relation between peritonitis and Bright's disease. The experiments of Gravit, Halsted, and others had demonstrated that the mere introduction of the ordinary pyogenic cocci into the healthy peritoneal cavity of animals did not suffice to produce peritonitis, but that the co-operation of certain secondary or accessory causes, such as the presence of strangulated tissue, wounds, stagnating fluids, etc., in the peritoneum was necessary in order to enable these bacteria to cause peritonitis. In Bright's disease, both acute and chronic, as well as in cirrhosis of the liver and many cases of heart disease, ascites, sometimes associated with fibrous thickening of the peritoneum, was a common condition, and this might be regarded as a predisposing or accessory cause of acute peritonitis; but in addition to this we might reckon with a lessening of the vital resistance offered by the tissues and fluids to the growth of pathogenic bacteria. Ascitic fluid, like the blood serum, was possessed of germicidal power, but we could understand that in some cases of Bright's disease or cirrhosis of the liver this germicidal power might be very much diminished or abolished. We had, therefore, as one factor in the causation of acute peritonitis accompanying Bright's disease an already damaged peritoneum with possible reduction of the resistance of the fluids and tissues to bacteria. The other and an essential factor was the entrance into the peritoneal cavity of bacteria capable of causing acute inflammation. Sometimes we could find the portal of entrance of these bacteria in a complicating erysipelas, a leg ulcer, etc., but often the most careful search failed to reveal the point of invasion, and here we were in much the same condition as in our explanations of many cases of acute ulcerative endocarditis ingrafted upon an old chronic endocarditis. We must assume that the bacteria entered the circulation or passed from the alimentary canal without readily demonstrable lesion at the point of invasion. Such bacteria would probably be eliminated or destroyed without doing any harm, if they did not find a damaged tissue or some point in the body where the normal resistance to their growth was lessened. In this way we might explain some of the cases of acute peritonitis secondary to Bright's disease. He had seen a few such cases, both genuine acute purulent peritonitis and acute sero-fibrinous peritonitis, asso-

ciated with acute and chronic diffuse nephritis, and this group of cases of peritonitis was a recognized one. The peritonitis was then usually a terminal event. That it was not a more common condition was probably due in large part to the germicidal power ordinarily possessed by ascitic and other fluids of the body.

Dr. Thayer said that the clinical aspects of the case of peritonitis caused by the proteus were in some ways rather interesting. The girl was brought in on Friday night. She was nineteen years of age, a prostitute, and but little history was obtained. Her friends said that her symptoms dated only three or four days back. The week before, she had not been feeling very well. She had several attacks of vomiting, and the physician who saw her said that there was "nothing the matter with her." Within twenty-four hours before she was brought in she became very dull, and on entrance was almost unconscious. At that time she was very well nourished; physical examination was entirely negative, barring the fact that she was dull and drowsy and could be roused with difficulty. The tension of the pulse was slightly increased, and the second aortic sound was somewhat accentuated. The urine was scanty, of low specific gravity, and contained a slight trace of albumin, but no casts could be found on repeated careful examinations. She was given diuretics, pilocarpine, and hot-air baths, with very little result. There was scarcely any sweating, and the amount of urine passed was small. She died on Monday afternoon in a convulsion. It was an interesting point that, although the urine was examined several times and the centrifugal apparatus used, no casts were found, while examination of frozen sections of the kidneys showed numerous hyaline casts in the tubules.

**Subphrenic Pyo-pneumothorax.**—The February number of the *Practitioner* gives a summary of an article published in the *Berliner klinische Wochenschrift*, 1892, No. 46, in which Professor Leyden records an unusual case of this affection. The patient, a girl of eighteen, was admitted to hospital shortly after the influenza epidemic. She complained very little: had moderate fever, with a high pulse frequency and slight pain in the right side; otherwise she looked well, had good appetite and slept well. With moderate dullness in the right side of the chest and crepitating rales, there was no expectoration; and the condition was looked upon as an inflammatory affection of the lower part of the right lung. Everything went on well for a time, there being little complaint. The fever decreased without a crisis; but, what was very significant, the pulse retained its high rate, and there was great distention of the abdomen. The account given by the patient of the illness was that she was quite well until three days before admission into the Charité, when she ate some orange peel, then vomited and felt pain in the right side. No light could be obtained from the history, and it was necessary to await the issue of events. Some little time after, there was presented the appearance of a right-sided pneumothorax, which was considered to be subphrenic. Vesicular breathing was heard on the right side from the clavicle to the second rib; from that downward the breath sound was absent where it had been heard very well a few days before. The succussion sound was ample evidence of a cavity containing gas. For the diagnosis, it was ascertained that, above the second rib, loud pure vesicular murmur was present, which could be heard on deep inspiration as low as the third intercostal space, and there was no displacement of the heart. The hollow percussion note was audible as far down as the costal margin, the displacement of the line downward could not be made out on account of the tympanic note from the abdomen, and probably an intestine lay over that organ. Stinking pus was obtained by means of the hypodermic needle, and it contained bacteria and two bilirubin crystals; on the second day some pieces of food colored with bile; and on the third day two ascariis eggs. These observations proved a perforation of the gut; and this was confirmed on the third and fourth day when there flowed a large quantity of fecal-looking and fecal-smelling fluid. The seat of the communication was thought to be the cæcum—but the diagnosis was founded on probabilities, as no thickening was to be felt in that region. After operation, drainage-tubes were placed in the abscess cavity to give free exit of pus and allow of disinfection. Good hopes were entertained of a successful result, the general condition being good, and the patient previously healthy. For a time things went well, the abscess discharging

fecal fluid. Then suddenly the patient began to cough, and a few days later spat up fecal matter. There was a hope that the perforation in the lung would exhaust itself, as the cavity freely discharged matter. But the cough became worse, sleep failed, and the patient soon died exhausted. The necropsy confirmed the existence of subphrenic pneumothorax. The right lung was very small, retracted, and healthy, and no perforation was found in it. The intestines were matted; the vermiform process was rudimentary and completely closed. The original cause of the trouble had therefore healed up; but above the cecum there was a peritoneal fecal abscess; and along the ascending colon an elongated purulent induration, which ran upward, was continuous with the cavity underneath the diaphragm. Evidently when the opening was made in the side, this enormous abscess cavity collapsed and contracted considerably. It was further found that the abscess had burrowed downward toward the symphysis, extending over to the left side, and thence spreading upward to the hollow of the diaphragm. The left-sided collection of pus was not so large, the spleen lay imbedded in it, and the matter had burst through the left lung, thus explaining the expectoration of fecal fluid. This case is an example of how puzzling and complicated the relations of some abscesses are, so that it is almost impossible to make an accurate estimate during life. Renvers records a case of subphrenic abscess on the left side which did well after drawing off the pus through a trocar.

**The Imported-Rag Question Again.**—The *New York Herald* for March 9th, in an article entitled *Bacteria Found in German Rags*, publishes among other things the following certificate by Dr. Paul Gibier:

"This is to certify that on January 5th I received for bacteriological examination a sealed envelope which contained some fragments of rags as coming from Bremen, Germany, on the steamship State of Alabama, December 10, 1892.

"Upon opening the envelope I found eleven small pieces of old linen, soiled and covered with spots which seemed to be desiccated blood and pus. The whole was perfectly dry.

"I took a small piece of one of the rags, soaked it in a small quantity of sterilized water, and crushed it with a glass rod. The microscopical examination showed various organic elements—deformed blood-corpuscles, white and red, and numerous bacteria.

"In order to ascertain whether these bacteria were alive, and, if so, in what proportion, I took two grammes (half a drachm) of small pieces of the rags cut from different ones. Of course this was done with every possible aseptic precaution; the rags were taken with sterilized forceps, cut with scissors heated over the flame of a Bunsen burner, put in a sterilized glass, and crushed with a sterilized glass rod in twenty cubic centimetres (two thirds of an ounce) of water sterilized for an hour in the autoclave under fifteen pounds steam pressure.

"A small quantity of the water taken from the crushed rags was prepared on glass tests in order to see whether it contained bacilli of tuberculosis. The ordinary preparations were made, but no bacilli of tuberculosis could be detected under the microscope.

"Five cubic millimetres of the liquid extract of the two grammes of rags were thoroughly mixed with five cubic centimetres of sterilized water, and again five cubic millimetres of the latter were mixed in the same manner with ten cubic centimetres of gelatin at fifteen per cent., prepared as usual and spread over glass plates previously sterilized and then refrigerated.

"After the plates had been exposed sixty hours at a temperature of 20° C. (68° F.), one hundred and ten colonies were counted, which had developed on the different plates, twelve of which were liquefying the gelatin.

"These different colonies, examined under the microscope, proved to be—

"(1) A diplococcus, non-liquefying the gelatin.

"(2) A staphylococcus of a long form, liquefying the gelatin.

"(3) A staphylococcus, liquefying the gelatin, which was identified with the *Staphylococcus albus* of the pus.

"(4) A micrococcus in zooglea, liquefying the gelatin.

"(5) A large staphylococcus, non-liquefying the gelatin.

"(6) A bacillus under the form of long rods, which seemed to be the *Bacillus subtilis*, liquefying the gelatin.

"(7) A *Toxula corymbosa*.

"(8) Another torula, producing colonies of a red color.

"(9) A staphylococcus, which grows only in the depth of the gelatin (anaerobic).

"(10) A streptococcus of a slow growth, non-liquefying the gelatin, which resembles the streptococcus of erysipelas.

"(11) A very fine micrococcus, non-liquefying the gelatin.

"Cultures of these different germs were made on gelatin and agar, also in peptonized broth, and their pathogenic properties were tried on guinea-pigs, rats, and rabbits.

"Though No. 1, No. 3, No. 4, No. 5, No. 9, and No. 11 caused slight illness, with an elevation in the temperature of one or two degrees centigrade, yet the animals inoculated with the cultures of these germs recovered. No. 2, staphylococcus liquefying the gelatin, seemed to have a different effect upon the rabbits at least. These animals, after having received in the veins an inoculation of this culture, died at the end of from forty-eight to sixty hours. No. 10 also, the streptococcus resembling that of erysipelas, though it produced but a slight elevation of temperature in guinea-pigs and rats, killed rabbits and was found in their blood after death.

"The deductions which may be made from these experiments prove that the rags which I have examined, and which I should judge came from a hospital or dispensary, and which were soiled with pathological liquids, had not been submitted to an effectual process of disinfection, if any. They certainly were not submitted to a high temperature, as the torulae which are contained among the germs found in the rags are destroyed after a few minutes by a temperature of 70° C. (158° F.).

"The number of living germs contained in two grammes of the rags was not less than four hundred millions for the small quantity examined, or eight hundred millions per drachm. I leave to others the task of calculating how many would be contained in a pound or in a ton. I can safely say, however, that if germs are contained in such quantities in rags which seem to have been used in some hospital, there is no reason why germs of diseases of any kind can not be contained in such matter. For instance, the germs of cholera, the microbes of typhus, tuberculosis, typhoid fever, diphtheria, small-pox, or any other contagious disease may be found in rags of similar origin. They would, consequently, be dangerous for any one who comes in contact with them and might be the means of spreading an epidemic."

**The Association of American Physicians.**—The preliminary programme of the eighth annual meeting, to be held in the Army Medical Museum and Library Building, Washington, on May 30 and 31 and June 1, 1893, includes the following titles: The president's address, by Dr. A. L. Loomis, of New York; a discussion on Myxoedema (*referee*), Dr. F. P. Kinnicutt, of New York; *co-referees*, Dr. J. J. Putnam, of Boston, and Dr. M. Allen Starr, of New York; Sporadic Cretinism in the United States, and A Supplementary Report on Anæmic Dysentery, by Dr. William Osler, of Baltimore; Some Problems in the *Ætiology* and Pathology of Texas Cattle Fever and their Bearing on the Comparative Study of Protozoan Diseases, by Dr. Theobald Smith, of Washington; Experiments with the *Bacillus diphtheriæ*, by Dr. A. C. Abbott, of Philadelphia; The Parasitic Nature of Cancer, by Dr. Heneage Gibbes, of Ann Arbor; A New Pathogenic Bacillus, by Dr. H. C. Ernst of Jamaica Plains, Mass.; Gonorrhœal Myocarditis, by Dr. W. T. Councilman, of Boston; The Prophylaxis of Cholera, with Special Reference to Immunization, by Dr. E. O. Shakespeare, of Philadelphia; Creasote in the Treatment of Tuberculosis, by Dr. J. T. Whitaker, of Cincinnati; On a Simple Continued Fever, by Dr. G. Baumgarten, of St. Louis; The Treatment of Typhoid Fever, by Dr. S. A. Fisk, of Denver; The Intestinal Treatment of Chlorosis, by Dr. F. Forchheimer, of Cincinnati; The Probable Origin and Early Symptoms of Certain Chronic Diseases of the Kidneys, by Dr. C. S. Bond, of Richmond, Ind.; The Reactions of the Urine with Ether, by Dr. A. H. Smith, of New York; A Study of Addison's Disease and of the Adrenals, by Dr. W. G. Thompson, of New York; Two Cases of Cystin Calculus, and Two Cases of Diaphragmatic Hernia, by Dr. James Tyson, of Philadelphia; Subphrenic Abscess, with Special Reference to Cases which simulate Pneumothorax, by Dr. A. L. Mason, of Boston; Subphrenic Abscess, by Dr. S. J. Meltzer, of New York; Sarcoma of the Lung, with Specimen, by



Dr. D. W. Prentiss, of Washington: Pulsating Pleural Effusions, by Dr. J. C. Wilson, of Philadelphia: The Importance of Uterine Displacements in the Production of Vomiting during the Early Stages of Pregnancy, by Dr. G. M. Garland, of Boston (to be discussed by Dr. W. T. Lusk and Dr. W. M. Polk); Experimental Observations concerning the Nature of Chorea, by Dr. H. C. Wood, of Philadelphia; and a paper by Dr. W. M. Polk, of New York. There will probably be time at the meeting for the reading of two or three papers more than those on this programme. Members who desire to contribute such papers are requested to send the titles of them to the secretary, Dr. Henry Hun, 149 Washington Avenue, Albany, N. Y.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 16th inst., was a paper on The Surgery of Gallstone Obstruction, by Dr. Robert Abbe.

For the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 20th inst., a discussion on The Kindergarten System in our Public Schools, and its Possible Effect on the Eyes of very Young Children, is announced.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 21st inst., the subject of The Etiology and Treatment of Primary Anæmias is to be discussed, and Dr. W. H. Porter is to read a paper on Hæmoglobin in the Anæmia of Malassimilation.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening the 22d inst., there is to be a discussion on Laryngeal Neoplasms.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 23d inst., there will be a discussion on Symphysiotomy.

**Some comparatively New Drugs and their Scientific Names.**—The *Progress medical* gives the following list:

COMMON NAMES	SCIENTIFIC NAMES
Antipyrine	Phenyldimethylpyrazoline.
Analgesine	
Antifebrine	Acetanilide, or phenylacetamide.
Antinervine	Salicylbromanilide.
Antiseptine	Paramonobromophenylacetamide.
Antiseptol	Cinchonine sulpholiate.
Anisol	Methyl phenate.
Aristol	Iodithymol.
Annidaline	
Betol	Beta-naphthol salicylate.
Naphthalol	
Bromol	Tribromphenol.
Creolin	A cresol preparation.
Cresalol	Paracresol salicylate.
Exalgine	Methylphenyl acetamide.
Hypnal	A mixture of chloral and antipyrine.
Iodol	Tetridopyrrol.
Iodopyrine	
Orexine	Phenyldihydroquinazoline hydrochloride.
Phenethol	Ethyl phenate.
Primuline	Sodium thioparalodidinesulphonate.
Saccharin	Orthosulphamidobenzoic anhydride.
Salol	Phenyl salicylate.
Salophen	Acetylparamidosalol.
Salipyrine	Antipyrine salicylate.
Sulphonal	Diethylsulphondimethylethane.

**The Prize of the Medical Society of the County of New York.**—The members of the society are invited to compete for the annual gold-medal prize, of the value of one hundred dollars, to be awarded by the society at its next annual meeting in October, for the best essay presented on any medical or surgical subject. The award will be subject to the following conditions: 1. The competitor shall be a member of the Medical Society of the County of New York. 2. The competitor's name shall not be revealed until after the decision of the committee on prize essays has been rendered. 3. The essay shall be designated by a motto and shall be accompanied by a sealed envelope exhibiting the same motto and inclosing the author's name and address. 4. If no

essay presented shall be adjudged by the committee worthy of the prize, no award will be made. 5. The essay must be in the hands of the committee on or before the first day of October, 1893.

[Signed] E. B. BROSSON, Chairman,  
123 West Thirty-fourth Street.

**The Pan-American Medical Congress.**—The executive president of the Section in Therapeutics, Dr. Hobart Amory Hare, of Philadelphia, asks us to state that it is the earnest desire of the officers of the section that both specialists and general practitioners should contribute articles to its proceedings. Gentlemen who desire to read papers at the meeting should notify Dr. Hare at once of their intention, and should send him by July 10th, at the latest, an abstract of their papers in order that they may be translated into the three official languages of the congress and announced in the programme. The importance of this section and the interesting papers which have already been promised give assurance of a very successful meeting.

**To Contributors and Correspondents.**—The attention of all who purpose forwarding us with communications is respectfully called to the following:

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—except not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining articles.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

## Original Communications.

## OBSERVATIONS ON

A CASE OF RECURRENT AMÆBIC DYSENTERY.  
WITH SUCCESSIVE LARGE HEPATIC ABSCESSSES.\*

BY JOHN WINTERS BRANNAN, M.D.,

ASSISTANT PATHOLOGIST TO ST. FRANCIS HOSPITAL, NEW YORK

The following case, occurring in the practice of Dr. George M. Edebohls, is believed to possess points of interest from a clinical, a surgical, and a pathological standpoint. During a period of time extending over about six years five different hepatic abscesses, the result of amæbic dysentery, were diagnosed and successfully operated upon, the patient finally succumbing to a sixth hepatic abscess which opened spontaneously and led to death by exhaustion. Post-mortem pathological investigation determined the presence of amæbæ coli in both the large intestine and the liver, and, in addition, occupied itself largely with the question of the reproduction of glandular hepatic tissue to supply the place of that destroyed by suppuration.

For the following clinical history I am indebted to Dr. G. M. Edebohls:

J. R., a married grocer, was thirty-eight years of age when he first came under the observation of Dr. Edebohls in August, 1886. He had been a sailor in early youth, but had never visited the tropics and had never been sick a day until 1885, many years after he had abandoned the sea. He had an attack of dysentery in July, 1885, and again in May, 1886. A few weeks after convalescence from this last attack he noticed the formation, with accompaniment of fever, of a painful tumor immediately beneath the xiphoid process of the sternum. The clinical symptoms pointed to hepatic abscess, and this diagnosis was confirmed by exploratory puncture.

To avoid unnecessary repetition in the further history of the case, it may be stated at once that each of the six hepatic abscesses from which the patient suffered was preceded by an attack of acute dysentery, the bowel affection antedating the hepatic abscess by intervals varying from two to six weeks. In each instance the abscess was diagnosed and located by exploratory puncture and the removed pus examined microscopically, with negative results, the beginning of the case antedating the introduction of the amæbæ coli into pathology. The amæbæ were first found post mortem. In the interval between the operative cure of each hepatic abscess and the next attack of dysentery the patient was apparently quite well and followed his avocation as grocer. All the operations, extending over a period of five years, were performed by Dr. Edebohls.

Abscess No. 1, in right lobe of liver, was operated upon, under cocaine anesthesia, August 31, 1886. Incision five to six centimetres long, parallel to and two centimetres and a half distant from the free border of the right costal cartilages. Peritoneal surfaces adherent over abscess which was situated at a depth of a centimetre and a half from the surface of the liver and contained ninety grammes of pus. Drainage and irrigation with sublimate solution (1 to 4,000) for two weeks. Definite healing of abscess and fistula one week later.

Abscess No. 2, right lobe, was incised, under ether narcosis,

December 5, 1886. Incision somewhat lower and some three centimetres to right of scar of former incision. Abscess at a depth of three centimetres from liver surface; eighty grammes of pus evacuated. Drainage for three weeks; then again definite closure and good health for three years and a half.

Abscess No. 3. Operation in two sittings. Cœliotomy, September 16, 1890. The patient being etherized, an incision, seven centimetres in length, closely hugging the free border of the right ribs, led into the free peritoneal cavity. Thorough digital exploration of stomach, liver, gall bladder, and neighboring parts, all of which were normal except liver. No adhesions anywhere, not even behind scars of two former incisions into liver. Abscess situated deep in right lobe and well beneath cover of ribs. Parietal peritoneum stitched to surface of liver in circular form and abdominal wound filled with iodoform gauze. On September 25th, without an anæsthetic, an incision was made penetrating the liver substance to the depth of five centimetres, when a small abscess was reached, emptied, and drained. During the following days immense quantities of bile were discharged with the pus. The symptoms, however, did not improve.

Abscess No. 4 was discovered in the posterior portion of right lobe of liver, and opened on October 17, 1890, under ether narcosis, by an incision through the eighth intercostal space posteriorly on a line with the outer border of the scapula. The pleura, lung, diaphragm, peritonæum, and liver were divided with the Paquelin cautery until a large abscess was reached, from which over five hundred grammes of pus were evacuated. A finger was inserted into the still open, smaller, anterior abscess, a uterine dressing forceps introduced into the larger posterior abscess, the septum between the two (composed of healthy hepatic substance two centimetres thick) perforated by the forceps, and a double drainage-tube of large caliber drawn through the liver fore and aft. By this means perfect drainage and irrigation was possible, the patient sitting up and catching in a basin at the front incision the sublimate solution (1 to 5,000) which his wife allowed to run in at the intercostal incision posteriorly. This drainage was kept up for nearly three months, when both abscess cavities and incisions healed definitely.

On December 1, 1890, the patient, with drainage-tubes in position, was shown at a meeting of the German Medical Society of New York.

Abscess No. 5, situated in the left lobe of the liver, one centimetre and a half from the surface, was opened on April 1, 1891, under mild cocaine anesthesia, the patient being almost moribund and too feeble to bear a constitutional anæsthetic. Adhesions had formed between the liver and parietes, and no difficulty was experienced in this operation. Eighty grammes of pus were evacuated, and drainage maintained for a week. The abscess cavity closed definitely in a month.

Abscess No. 6, situated in the right lobe, was not operated upon, Dr. Edebohls being summoned after spontaneous opening had occurred and when the patient was already in *extremis*. This last abscess opened on March 18, 1892, and discharged a large quantity of dirty, shreddy material and pus. Patient died of exhaustion, due to the combined dysenteric and hepatic affections, on March 23, 1892.

The entire large intestine and the liver, which had been removed at autopsy a few hours after death, were presented in a fresh state by Dr. Edebohls at a meeting of the New York Pathological Society held the same evening.

Two features of the clinical history deserve special attention. The first was the intense and terrible shock on

\* The histological studies recorded in this paper were made in the Pathological Laboratory of the College of Physicians and Surgeons, Columbia College, New York.

each of the three occasions when the hepatic tissue was cut through without the employment of a general anæsthetic. While the incision through the abdominal walls left the patient unmoved, the brave man collapsed totally as soon as the liver was incised. The pulse became small, on one occasion imperceptible; profuse, clammy perspiration suddenly broke out; respiration was suspended; and during one operation Dr. Edebohls feared his patient had died under the knife. In a fairly large surgical practice he had never seen anything so profound in the way of shock and collapse.

The second point of interest was the total disappearance, after three years, of the firm peritoneal adhesions through which the first two abscesses had been opened and drained.

The autopsy was made twelve hours after death. The body was fairly well nourished. In the right hypochondriac region, just below the border of the ribs, was a small opening from which pus oozed. The liver was firmly adherent to the abdominal wall in front and to the diaphragm above. At several points on its anterior surface there were deep furrows associated with an extensive development of fibrous tissue. This fibrous tissue extended into the substance of the liver to the depth of from two to five centimetres in places. In the anterior middle portion of the right lobe of the liver there was a large, thick-walled cavity, lined with a pyogenic membrane and containing a large amount of necrotic tissue and pus. This cavity communicated with the external opening above referred to below the costal margin.

There were no other abscesses in the liver. There was no involvement of the lung in the process in the liver, nor was the lung adherent to the diaphragm. The intestines were in places bound together by old adhesions. There was no evidence of recent inflammation of the peritonæum. The small intestine was normal. The large intestine was the seat of extensive ulceration of the mucous membrane, most marked in the descending colon and the rectum. The ulcers were mostly irregularly oval in shape and of greater or less depth. Some of them extended into the muscular coat of the bowel. The other organs of the abdominal and thoracic cavities presented no noteworthy changes.

The contents of the hepatic abscess were examined for living amœbæ, but with negative result. The autopsy was made late in the day and the microscopic examination was, unfortunately, rather hurried. Cover glasses prepared from the pus also failed to show amœbæ. Portions of the intestinal ulcers and of the abscess wall of the liver were hardened in strong alcohol. Sections were then made and stained with various media. The methylene blue stain seemed to offer no advantages over the more usual hæmatoxylin and eosin stain. By means of the latter stain the amœbæ were recognized both in the intestine and in the liver. They were not found in all the ulcers, though this may have been due to insufficient search. In some ulcers they were present in large numbers, lying apparently in the lymph spaces at the edge of the ulcer. No amœbæ were found in the blood-vessels. The amœbæ in the liver were much more difficult to recognize and were in much smaller number. They lay always in the outer fibrous wall of the abscess; none were seen in the liver tissue itself.

In spite of the extensive destruction of hepatic tissue, which must have resulted from the numerous abscesses referred to above by Dr. Edebohls, the liver itself was of normal size. It was thought at the time of the autopsy that the liver might be

an instance of the new formation of glandular tissue described by Ponfick as occurring in both man and animals. With the view of elucidating this point, sections were made in various parts of the organ and studied with great care.

Ponfick,\* in his animal experiments, removed large portions of the liver in rabbits, and the animals lived with apparently undisturbed hepatic functions. On killing the rabbits at intervals varying from three to twelve weeks after the operation, the liver was found to have regained its normal size, and Ponfick was able to observe the successive phases of the reproductive process, showing the division of nuclei, increase of cells, growth of young bile-duct radicles, etc.

His studies† in man are based upon six cases of echinococcus of the liver, in which one lobe was entirely destroyed by the growth, but the other was so much enlarged that the liver was of normal size and weight at the time of death. In one case, for instance, the remains of the right lobe weighed only 150 grammes, in place of the normal 1,350 grammes, while the left lobe had hypertrophied to such an extent as to weigh 1,580 grammes instead of its normal weight of 450 grammes.

In man the regenerative process had ended and its steps could not be demonstrated; but there was evidence, in Ponfick's opinion, of its having taken place. The arrangement of the hepatic lobules was peculiar, differing from the usual radiate grouping of the glandular elements. The cells lay heaped up together, evidently without plan, and similarly the vessels lying between them did not have the usual relation to a single central collecting vein. The capillaries had many side branches, forming even net like meshes. Not all parts of the lobules were equally involved, but only certain portions, especially those in the periphery. Here not only the arrangement of the cells was peculiar, but also their size and form, contrasting strongly with the cells in the central and intermediate zones. The diameter was less—only one half or even less that of the normal cells. Normally the central and intermediate cells are said to be smaller than those of the periphery; here the reverse was the case. The form also was peculiar; in place of the hexagonal type, which the majority always have, the cells were short and full, peculiar compressed forms, now quadrate, again and more frequently five-sided, and also noticeable for having usually only one nucleus.

The new liver tissue is thus seen to be more or less atypical in form; yet the hepatic functions were apparently preserved in all the cases observed by Ponfick.

Returning now to our own case, what conditions have we to explain the normal size of a liver which had been the seat for years of a chronic destructive process? We have already referred to the connective-tissue growth extending at several points from the surface of the liver deeply into its substance. This connective tissue evidently represented

\* E. Ponfick. Experimentelle Beiträge zur Pathologie der Leber. *Arch. f. path. Anat.*, etc., Berlin, Bd. 118, p. 209, 1889, and Bd. 119, p. 193, 1890.

† E. Ponfick. Ueber Recreation der Leber beim Menschen: ein Beitrag zur Cellularpathologie. *Festschr. Rudolf Virchow*, Berlin, 1891, p. 1.



the cicatrices left by the various abscess cavities. The cicatricial tissue was so abundant that it of itself would go far toward replacing the liver tissue destroyed. In other parts of the liver, far removed from the seat of the abscesses, there was also an extensive formation of connective tissue. This newly formed tissue not only followed Glisson's capsule between the lobules, but extended into the lobules between the liver cells. In other words, there was chronic interstitial hepatitis, both intralobular and interlobular.

The new tissue was very irregular in its distribution, being more abundant in some portions of the liver than in others. It was nowhere very large in amount and was not visible to the naked eye. It had not shown any tendency to contract; the inclosed liver tissue was not compressed.

But this new formation of connective tissue was not the only process present to explain the size of the liver. Throughout the greater part of the organ the capillaries were large and rather irregular and distended with blood, and contained cells of various sizes and shapes. These cells were apparently either normal or proliferated endothelium.

The liver cells in the region of the dilated capillaries were somewhat distorted, but otherwise not much changed. In no part of the liver was there noted the peculiar arrangement of the lobules described by Ponfick. The regular distribution of the capillaries was maintained and the cells did not vary materially from the normal type in either size or shape.

While it is evident, from the experiments of Ponfick and others, that more or less extensive losses of parenchymatous tissue may be made good by a reproduction of specialized cells, our observations in this case would call attention to the fact that the repair of such losses in an organ restored to its original size can be largely accounted for by a widespread dilatation of the thin-walled blood-vessels.

## THE CORRECTION OF DEFORMITIES OF THE NOSE

RESULTING FROM ABSCESS OF THE NASAL SEPTUM.\*

By JOHN O. ROE, M.D.,  
ROCHESTER, N. Y.

FIVE years ago I submitted to the profession an operation for the correction of the deformity termed "pug nose" by an intranasal operation without wounding the skin.† and again, in 1891, an operation equally new for the correction of angular deformities of the nose, also by a subcutaneous operation.‡

At the present time I desire to present for your consideration a simple method by which the deformity frequently arising from abscess of the nasal septum may also be corrected by a subcutaneous and intranasal operation.

\* Read before the American Laryngological Association at its fourteenth annual congress.

† The Deformity termed "Pug Nose" and its Correction by a Simple Operation. *Medical Record*, New York, 1887, vol. XXXI, p. 621.

‡ The Correction of Angular Deformities of the Nose by a Subcutaneous Operation. *Medical Record*, New York, 1891, vol. XL, p. 57.

Deformities of the nose resulting from abscesses of the nasal septum are of comparatively frequent occurrence. In nearly all cases they can be prevented if the abscess is early recognized and properly treated. It sometimes happens that the abscess is unrecognized, and for this reason a deformity of the nose is caused which might have been prevented. In some cases, however, in spite of the most active and efficient treatment, abscesses of the nasal septum produce sufficient deformity to give the nose a very unsightly appearance.

Abscesses of the septum may originate from a variety of causes: from simple inflammation resulting from colds; from the purulent affections of the nostrils often found in children; from syphilis; and from traumatism. A scrofulous, strumous, or rachitic diathesis frequently predisposes to this affection. Abscess of the nasal septum also frequently results from disease of the teeth, particularly in children, for it is during the first dentition that abscess of the nasal septum, as well as of the ear, is most frequently found. The following case very clearly illustrates the influence of irritation caused by diseased teeth in the production of such an abscess:

A young man seventeen years of age was referred to me by his family physician on account of an obscure acute affection of the nose causing much swelling and obstruction of the nostrils. One week previous to the time when I saw him he had the two upper incisor teeth filled with amalgam. For two or three days afterward his teeth were very sensitive and painful if he attempted to bite with them. The third day after the teeth were filled he began to have a soreness in his nose, followed by a swelling which completely occluded both nostrils. The day before I saw him a slight purulent discharge from the left side was noticed, with a corresponding lessening of the swelling in that side. On examining his nose, I found the septum bulging very much on both sides of the cartilaginous portion. On exploring it with a probe, this swelling exhibited the characteristic doughy condition of an abscess. I incised the swelling freely on both sides at the lower portion of the septum, and about a teaspoonful of pus escaped. The cavity was thoroughly evacuated, the



FIG. 1

cavity of the abscess was cleansed with a twenty-per-cent. solution of peroxide of hydrogen, and the nostrils were lightly packed with an antiseptic wool dressing. It was cleansed and

dressed daily, and every effort made to prevent any extension of the abscess, and destruction of the cartilage. The discharge of pus speedily disappeared, but the triangular cartilage had become so much involved as to cause a breaking down of the upper portion and the destruction of the small cartilages on the dorsum of the nose that serve as a connecting link between the shield cartilage and the nasal bones. Fig. 1 represents the nose after this had taken place.

In adults, abscess of the nasal septum causing deformity of the nose usually results from syphilis, as it is rarely that sufficient destruction of the cartilages results from abscess of simple inflammatory origin to allow of a sinking in of the nose. Deformity of the nose resulting from simple abscess of the septum can ordinarily be distinguished from that caused by syphilis by the fact that in the former case there is simply a destruction of the whole or a portion of the triangular cartilage, while the soft tissues remain intact; whereas in syphilis the soft parts are also frequently destroyed with the cartilaginous parts, leaving a large perforation in the septum, and a corresponding depression of the central portion of the nose. In some instances, however, syphilitic perichondritis may result in abscesses of the septum and cause a destruction of the cartilaginous portion without destruction of the soft parts. In those instances in which the abscess is confined to the cartilaginous portion of the septum and produces sufficient destruction of the small connecting cartilages to permit the dorsum of the nose to drop in, it gives the central portion of the nose a depressed appearance as if the person had been struck upon the top of the nose with a small, round body, like a poker.

In some instances the destruction goes on until the cartilage is almost or entirely destroyed and the nose becomes flattened upon the face. A most pronounced case of this kind came under my care about four years ago.

A girl, sixteen years old, had had from infancy an extremely flattened condition of the nose that was undoubtedly the result of an unrecognized abscess, there being no history of inherited specific disease, or evidence of scrofulous taint. Examination showed the nasal bones to be normal, but the triangular cartilage of the septum to be entirely absent. The soft parts were intact in their normal proportions, but so flattened upon the face from lack of central support as to give the girl a very unsightly appearance. The difficulty in this case was to find enough material to render the septum sufficiently firm and rigid to hold up the end of the nose. There was, as is usual in these cases, a marked widening and thickening of the dorsum of the nose proportionate to the amount of flattening. This thickened ridge of tissue was incised through to the under side of the skin on both sides a short distance from the septum at a point where it thinned into the alæ of the nose. The skin was then raised from the dorsum of the nose, and the flaps were turned upward and held in place by small ivory splints, having holes through which sutures were passed from one to the other through the flaps, and tied so as to hold them firmly in place without strangulating the parts. This relieved the flattened condition of the nose and also gave the dorsum a sharper appearance. The nose was, however, altogether too flat. Owing to the entire absence of the triangular cartilage, there was not sufficient central support to hold the nose upright. In order to increase the solidity of the septum, I first scarified each side of the lower portion of the septum and the floor of the nose, and divided

the anterior portion of the septum, leaving the front portion of the skin intact. I then cut wide, thick flaps from the floor



FIG. 2

of the nostril opposite the portion of the septum which I wished to render more rigid. These were turned upward and held together with clamps in a manner similar to the upper flaps,



FIG. 3

and their upper borders were also connected to the cut portion of the septum with fine sutures. The result was most excellent, as will be seen by the illustrations; for the flaps, when united to the septum, were found sufficient to support it, and

give the nose a very presentable appearance—so much so that it would not be suspected that the previous very flattened condition had ever existed. In order to maintain the nose in



FIG. 1.

position until the parts had become thoroughly healed, I placed in the nose small spiral springs, as shown in Fig. 1, the upper arm being bent to the proper contour, so as to lie along under the dorsum, the other arm lying along the floor of the nose. The tension was regulated by bend-

ing the spring to the desired tonicity before introducing it. These springs were worn until the nose became firmly fixed and their further use was not required. Fig. 2 represents the condition of the nose before the operation. Fig. 3 represents the nose about three months after the operation.

I have also found these springs exceedingly serviceable for holding in place fractured noses, as illustrated in an exceedingly interesting case which I reported in a previous article.\*



FIG. 5.

Figs. 5 and 6 represent the nose of a man thirty-five years of age, where the central portion had been flattened

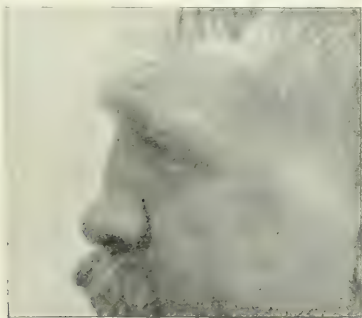


FIG. 6.

from destruction of the septum by an abscess so as to cause a very pronounced deformity. The soft parts, however,

were not destroyed, but greatly distorted. In this case the skin was first raised from the depressed portion of the nose. Flaps composed of the distorted tissue were cut from the inside of the outer wall of each nostril and turned up so as to fill the depressed portion of the center of the nose, and



FIG. 7.

held there by pins, and the proper shape maintained by a mold conformed to the outside of the nose. The result

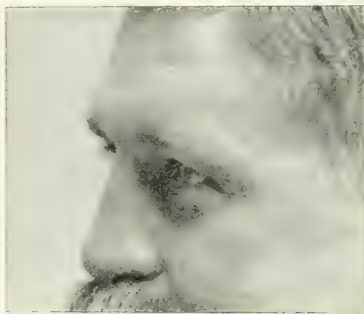


FIG. 8.

was excellent, as shown in Figs. 7 and 8, which represent the condition of the nose after the parts were firmly healed.

In a similar manner an operation was performed on the nose of the young man whose case has already been described, and it is illustrated in Fig. 1. The depressed portion of the nose was completely restored.

This method of restoring sunken noses also obviates the necessity of resorting to the plan devised by Martin\* or other orthopædic appliances. Martin supports the depressed portion of the nose by a mechanical device made of platinum, placed under the skin so as to raise it sufficiently to give the nose a symmetrical shape.

As I pointed out in a previous paper,† the nose is not unsightly on account of its size, but by reason of its shape. Therefore, when the central portion of the nose is depressed, if we either raise the depressed portion so as to bring it on a line with the end of the nose, or so lower the end of the nose as to bring it on a line with the depressed

\* Claude Martin. De la prothèse immédiate, etc. Paris, 1889.

† *Med. Record*, 1887, vol. xxi; *op. cit.*, p. 622.

\* *Med. Record*, 1891; *op. cit.*, p. 59.



portion, we restore the nose to a symmetrical shape. The nose will also appear much larger than before the operation, although in the latter instance it will necessarily be somewhat smaller.

# OBSERVATIONS ON THE TREATMENT OF PNEUMONIA BY MEANS OF DIGITALIS AND CHLORAL.

BY LLOYD M. BERGEN, M. D.,

HIGHLAND PARK, ILL.

THE great field of medical and surgical science to-day presents such a myriad of novel evolutions, and is so teeming with the brilliant achievements of pathological and clinical research, past and present, that the physician who attempts keeping abreast of the times naturally enough frequently becomes disheartened regarding his pansophical ambitions, and turns from his literature in confusion. The most intricate and fanciful theories which have absorbed his entire interest, and which, in his enthusiasm, he has eagerly grasped as truth, are frequently—in the succeeding issue of his journals—dissected beneath the scalpel of cold criticism and consigned to well-merited oblivion.

The "Brown-Séquard folly" had scarce completed its circuit of the globe, startling the entire profession with the boldness of its claims, when it was speedily overtaken by utter annihilation. The lymph of Koch plunged hundreds of the world's greatest pathologists into intense controversy before having its claims properly adjusted and being placed before the profession in the light of its true value.

The cause of much of this confusion lies in the error which appears to possess even our greatest investigators—that of expressing themselves hurriedly. Frequently, relying upon superiority of position, they become promulgators of immature theories and ideas which have not been satisfactorily demonstrated, and can not endure the crucial test of a general adoption. These hurried opinions, emanating from recognized sources of high authority, are readily adopted and propagated by the great body of physicians until some more keen and logical—and I may add daring—observer ventures a protest, which is often followed by a perfect avalanche of statistics and opposing testimony directed against the reasonableness or advisability of the measure in question.

In the realm of medicinal therapeutics especially should the average physician exercise due care and conservatism in adopting or rejecting new and novel lines of treatment intended to supplant those older and more thoroughly tested. The science of medicinal therapeutics is still so far in its infancy that new suggestions for treatment by means of drugs can scarcely be hoped to appeal to us through a minute and accurate demonstration of their physiological action and its relation to certain pathological conditions encountered. The exact nature of tissue changes wrought by the administration of medicines, and their immediate and final influence over physiological and pathological metabolism, are still enveloped in a great deal of uncertainty. Even our so-called *rational therapeutics* must as yet, even when employed in conjunction with all our

chemical, physiological, and pathological knowledge, be regarded in the light of an applied science—devoid, to a great degree, of accuracy, and therefore necessarily unsatisfactory. With our present knowledge we can not remedy this condition of things, and until that great future day of scientific triumph, when *therapeutic empiricism* shall give way before absolute therapeutic rationalism, we are obliged to content ourselves with a reliance upon our notions of the relations between medicine and disease, as clinically observed, noting as minutely as possible the results obtained, and, by making known these results, obtain a general consensus of opinion as to the methods most desirable and which will result in the greatest good.

With this object in view, the author has been led to present his experience regarding the treatment of one of the most formidable of all acute diseases—pneumonia. Our ideas regarding the general and local management of this disease have undergone a marked revolution during recent years. The jacket poultice has been replaced by the ice bag and ice cradle. Hyperpyrexia is now met with a prompt and fearless application of the cool bath, and an occasional resort to the cold pack. The disease is *fed*, since we have learned that abundant nourishment from the beginning is an all-important factor in aiding recovery.

All of these recent and radical displacements of older ideas have now been thoroughly tested, and clinical reports from all parts of the world attest a gratifying reduction of mortality as a result.

While these recent ideas were being evolved in the domain of general and hygienic treatment, the therapeutists have not been idle.

Beyer\* has exhibited antipyrine in a number of cases with some degree of apparent success. Pieragnoli† has recently made use of calomel and opium, for which he alleges good results so far as mitigating the general course of the disease is concerned. Green‡ strongly advises the employment of peroxide of hydrogen. Desseau§ has suggested veratrum viride, aconite, and calomel as a means of increasing the flow of venous blood to the liver, thus both relieving the pulmonary circulatory embarrassment and stimulating the hepatic organ to a greater destruction of toxic substances in the blood.

To Petresco|| is probably due the credit of having been the first to exhibit digitalis in full doses at the beginning of the disease. He administers the drug at the astonishing rate of a tablespoonful of the fresh infusion every half hour in severe cases. He states that seventy-five to one hundred and fifty grains of the drug may be given daily and continued from two to four days, and that he has never experienced a case of poisoning.

Hershey^ gives the infusion of digitalis in tablespoonful doses every hour, while Balfour^ has made use of the

\* *Medical News*, June 15, 1890.

† *Lo Sperimentale*, Florence, June, 1890.

‡ *Journal of the Respiratory Organs*, August, 1890.

§ *Archives of Pediatrics*, Philadelphia, September, 1891. *Therapeutic Gazette*, Detroit, November, 1891.

|| *Therapeutische Monatshefte*, Berlin, February, 1890.

^ *Medical News*, Philadelphia, August, 1891.

^ *Edinburgh Medical Journal*, November, 1891.

combined administration of digitalis and chloral during the earlier stages of pneumonia.

In order to a general understanding of the almost immediate relief following the exhibition of digitalis in pneumonia, and the subsequent amelioration of the inflammatory changes, we must keep in view a general idea of the morbid anatomy of the disease during the early stage—viz., the stage of congestion. Pneumonia is a disease whose every period is characterized by the word *acute*. There is scarcely another disorder marked by such intense and rapidly varying tissue alterations or followed by so profound a degree of exhausted vitality. It is ushered in by an intense congestive hyperemia, with a rapidly succeeding inflammatory exudate, so profuse that within a few hours the air is driven from the alveoli and respiratory bronchioles. A rapid detachment of epithelial cells, homogeneous plates, and blood cells follows, coagulation of the entire mass of the inflammatory *débris* occurring later. During this earlier stage of hepatization, Ziegler informs us,\* “the lung is still highly vascular and filled with blood”; the capillaries are greatly distended, and, as a result of this engorgement, extravasation of the liquid elements and even solid constituents of the blood takes place. The degree of hyperemia and the duration of its existence determine the amount of exudation, and as directly the severity and extent of the inflammatory changes occurring in the affected area later. It is at this *early* stage, while the pathological changes are still almost purely vascular in character, that we may reasonably hope, by prompt and intelligent interference, to modify and limit the subsequent textural disorganizations.

It is neither necessary nor within the scope of this article to inquire into the morphological elements which are now demonstrated to exist as the direct etiological factors in exciting this initial hyperemia. Whether the disease is considered as constitutional or local; whether the exciting principle is of chemical, thermal, traumatic, or bacterial origin; whether it finds access to the lung tissues through the air passages or general circulation—the fact remains unmodified and undisputed that the first noticeable local manifestations consist in a great embarrassment of the pulmonary circulation due to hyperemia. It would consequently appear rational to direct our first efforts toward an attempt to relieve the overdilated capillaries by inducing an increased circulatory activity throughout the diseased portions of the lung. This object may be partially accomplished by such methods as venesection and by measures adopted for the purpose of diminishing the volume of blood in the pulmonary vessels and spaces by attracting it to other parts of the body; also by the local application of cold over the seat of congestion. The first of these measures is palpably practicable only in those cases of robust and plethoric type. The second is followed by only very slightly beneficial results. The last is of doubtful utility, whatever of benefit it furnishes being more probably due to its action as a general refrigerant than to any direct local influence over the congestion. Increased

circulatory activity in the hyperemic tissues may best be brought about by increasing the *vis a tergo* of the blood current. The heart is the organ which must be relied upon to overcome the obstruction.

Digitalis is undoubtedly the drug possessing the most desirable influence over the cardiac organ in so far as powerful, lasting, and safe stimulation is concerned, and it is in just such a circulatory emergency as that experienced in the first stage of pneumonia that we may witness its fullest and most beneficial action. The drug should be exhibited in full doses of the fresh infusion, the idea being to obtain prompt and decisive action on the part of the cardiac muscles. In response, we find the pulsations are at once slowed and strengthened, and, as a consequence, the blood, being forced through the affected area, overcomes the dyscrasia and substitutes an active circulation for one bordering upon stasis. As a result, we may reasonably believe that we accomplish not only a relief of the vascular engorgement and diminution in the amount of extravasation going on, but a positive reabsorption of a part of the liquid exudate already manifest. Clinical appearances certainly bear us out in our presumption that these changes do occur.

The action of digitalis is chiefly confined to the organs of circulation. Under the stimulation of full medicinal doses, cardiac action is slowed through stimulation of the vagus in the heart and medulla, while from a similar stimulation of the intrinsic cardiac ganglia ventricular contractions increase in force. As a consequence, arterial pressure rises. Through the lengthened diastole the ventricles are well filled, and during systole, through increased force, they are thoroughly emptied. In pneumonia the administration of digitalis in sufficient doses to accomplish the best results requires care and watchfulness on the part of the therapist. It should be exhibited almost to the full limit of tolerance, and must not, of course, be carried beyond the first stage of its action. Symptoms of accumulation must be carefully observed, although it will be found that the dose borne with comfort and salutary effect is much larger than that tolerated under normal circulatory conditions. This peculiar tolerance of the drug might be roughly compared to giving an engine, pushing a heavy load, a full head of steam, when a similar pressure applied in the absence of a load to oppose its force would result in the destruction of the machinery. - With a heavy circulatory obstruction ahead which must be met there is very little danger of a runaway heart being caused by the action of digitalis.

It is true that by thus increasing the cardiac effort we cause an increased arterial tension, still higher blood pressure, and consequently augment the elements opposing the heart. But we must remember that in this early stage we are dealing with a presumably sound organ which is capable of great exertion, and not one overdilated, worn out, and failing through prolonged overwork. Manifestly, when we have overcome this abnormal peripheral resistance, arterial pressure will rapidly fall, allowing the heart to rest and recover.

Again, we must bear in mind the condition of the pul-

\* *Text-book of Pathological Anatomy and Pathogenesis.*

monary veins in this hyperæmic stage. We know that the variations in pulse-rate are regulated entirely by the duration of diastole, systole remaining practically unchanged at all times. During this hyperæmic stage we find frequently the pulse-rate running up to 140 or 150 a minute. This means a corresponding shortness of diastole—the period during which the ventricles are resting and filling with blood. Consequently this diminution in the time of emptying the veins raises the pressure within them, and thus adds another factor to embarrass the onward flow of blood through the engorged capillaries. Under the influence of digitalis, diastole is greatly lengthened, the veins are emptied, and the heart strengthened by the enforced period of rest between contractions.

One observer professes to have aborted several attacks of pneumonia at the end of the second and third days by this treatment. The author has never observed this result, although such an accomplishment might not be considered beyond the range of possibility when we observe a temperature of 106° fall to normal in twelve hours from the beginning of treatment. The results, as manifest by the selected cases here reported, point rather to a marked diminution in the severity of the subsequent inflammatory changes and products than to a shortening of the duration of the disease. This permanent mitigation of the disorder is probably also partially due to the fact that in certain more favorable spots in the diseased areas the process stops short with the stage of congestion, the beginning exudation being rapidly reabsorbed, the remainder taking on more the character of an inflammatory œdema, characterized by a conspicuous absence of fibrinous elements. This we are reasonably led to infer from the rapidity with which certain affected regions are discovered to have apparently recovered and contain air, even as early as twenty-four hours from the beginning of the treatment. In brief, the complexus of symptoms, as observed clinically, which evidence beneficent results may be summarized as follows:

1. Prompt and permanent temperature decline.
2. Lessened respiratory embarrassment.
3. Almost complete disappearance of cyanosis (often complete).
4. Marked lessening of pulmonary pain.
5. Amelioration of cough.
6. Slowing and strengthening of the heart's action.
7. Increased activity on the part of the cutaneous and urinary systems.
8. Moderately increasing resonance over the affected area. (This last is sometimes so great as to lead to the hope of the disease having been aborted.)

These changes, under a watchful guidance of the drug, are to a great degree permanent. The temperature remains kind, unless influenced by a fresh extension or migration of the disease to healthy portions of the lung.

In a very great majority of the cases which have fallen under the author's observation there has appeared a marked tendency on the part of the disease to terminate by lysis. In one case only has there been noted anything approaching a distinct crisis. How far this termination of the disorder has been influenced by the method of treatment

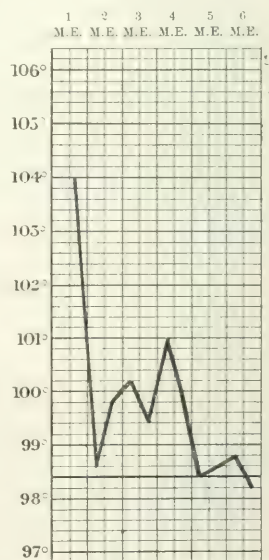
adopted, or whether it occurred in all these cases as an interesting coincidence, we are not at present prepared to state. It certainly could not be attributed to constitutional vice or alcoholism, as but two of the cases presented indications of the presence of either. Another prominent feature and worthy of note in this group of cases has been the quantity and quality of the sputa. Without exception, the amount of expectorated matter was *very* small. In Case V no cough or expectoration was present after the third day. Slight traces of blood were observed during the first half of the second day. In Case IV the cough subsided entirely on the fourth day, but returned slightly on the eighth in a very mild form, the expectorated matter consisting simply of free glairy mucus, and marked by a very trivial amount of fibrin and epithelial débris. In both these cases the physical signs presented all the indications of rapid and uninterrupted resolution by absorption.

Regarding the action of chloral, there appears a diversity of opinion and, it must be admitted, considerable obscurity. During its exhibition there results certainly a diminished reflex excitability and consequent tissue relaxation. Possibly through this same relaxation of the general vascular system and through partial paralysis of the peripheral vessels, the general blood pressure falls, allowing an increase in the systemic blood volume, thus affording an additional outlet for the overtaxed pulmonary capillaries. Aside from this, its influence in calming the cerebral excitement and anxiety tends in a general, but none the less effective, manner to husband strength and promote recovery.

Below are given clinical charts of five cases selected from a total of sixteen. These are presented, not because they furnish more brilliant results, but from the fact that they serve as the best examples of different type, age, nationality, temperament, habits, and occupation.

In none of the sixteen cases observed did the temperature fail to fall to within one degree and a half of normal

during the first eighteen hours of treatment. In the cases of the more robust patients a ten-grain calomel powder was given with the initial dose of digitalis and chloral. The medicinal treatment consisted in administering—beginning with the first recognition of the nature of the disease—half an ounce of the fresh infusion of digitalis, re-

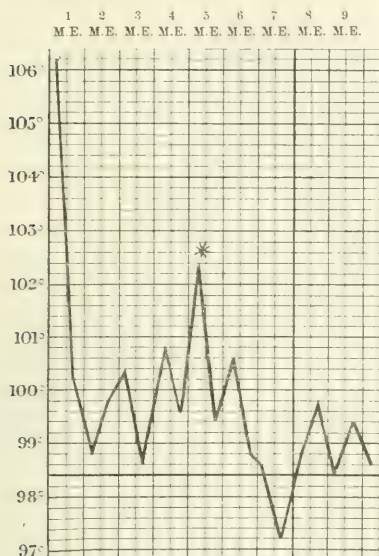


CASE I.—A. G., twenty-two years of age, a native of Germany, by occupation a carpenter.



peated every hour until the temperature, pulse, and respiration had fallen to nearly normal. When this point was

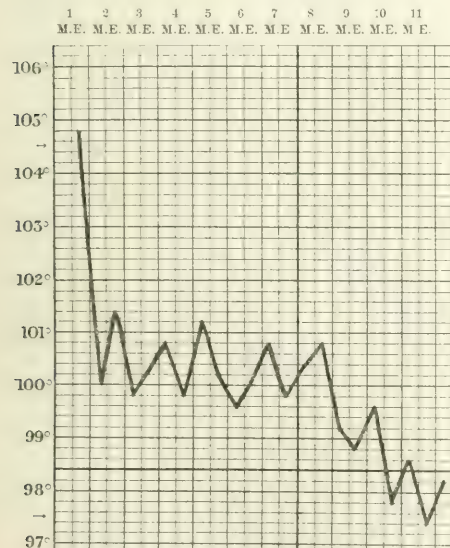
was reduced until the disease had practically subsided. The amount of chloral was determined independently of the



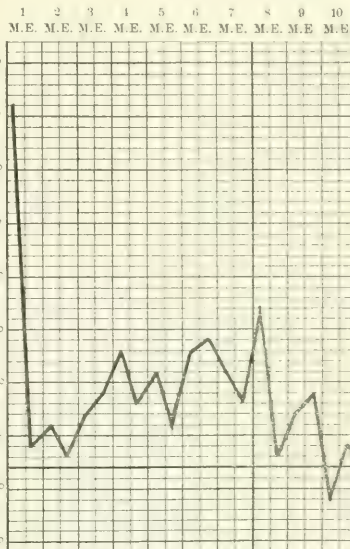
CASE II.—Pneumonia of the right lung, apex most seriously involved. H. C., thirty-eight years of age, a native of Sweden, by occupation a bricklayer. Recovery uneventful.

\* Taken on the morning on which the patient got out of bed and dressed himself.

approached, the intervals of the dose were lengthened to two, three, or even four hours, and gradually the quantity

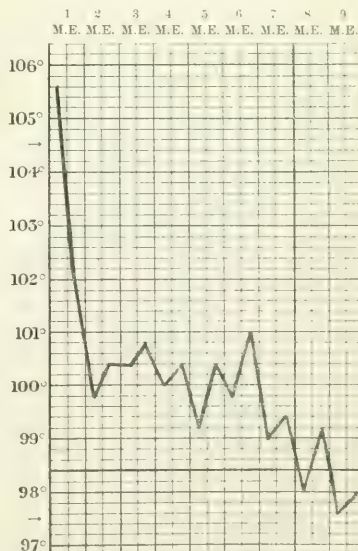


CASE III.—Pneumonia of the left lung. J. D., twenty-six years of age, a native of America, by occupation a bookkeeper. Recovery.



CASE IV.—Pneumonia at the base of the right lung. J. G., twenty-eight years of age, a native of Ireland, by occupation a carpenter. Recovery.

digitalis, although the two drugs were without exception administered in combination. Twenty grains were, in a major-



CASE V.—Pneumonia at the base of the right lung. T. S., thirty-two years of age, a native of Scotland, by occupation a laborer. Recovery uneventful.

ity of cases, given at the initial dose, ten grains being given hourly until the patient presented a condition of decided

drowsiness, and thereafter the aim was to modify the amount in sufficient quantity to maintain a condition of perfect quietude during the first forty-eight hours of the disease.

Venesection was not practiced in any case. In three instances an ice-bag was applied over the affected area, and in no case was any other antipyretic measure adopted with the view of reducing temperature. No effort was required in this direction, since hyperpyrexia was uniformly absent after the first few hours.

The temperature of the sick-room was maintained as nearly as possible at 55° F. Light sponge baths were administered night and morning, and an abundant absolutely milk diet enforced.

In one case only was there any threatening cardiac action; this occurred in Case I on the fifth day. The patient, a very ignorant individual, cared for by still more ignorant attendants, insisted upon dressing and walking down stairs. This being followed by extreme exhaustion, those present became alarmed and gave the patient an ounce of poor whisky, which was followed by very irregular and rapid heart action, with severe dyspnoea. A prompt resort to strychnine and enforced quiet speedily overcame the danger. In one case, owing to persistent dullness over the right base, associated with a low febrile condition, aspiration was performed at three different points. The results were negative, and the disease passed on to slow but uneventful recovery by absorption.

Perhaps the most interesting feature of these cases and one which surprised the author was the tremendous and prompt temperature decline at the outset of the disease. As evidence that this decline is due to a removal of the cause, it might be stated that in three cases the digitalis and chloral were withheld after the first eighteen hours, with a view of noting the result. The temperature showed no tendency to rise to more than a very moderate elevation, the pulse and respiratory rate keeping in good proportion. In one case only were alcoholic stimulants administered in more than mere tonic doses. The condition of the patient in each of the other cases was not such as to furnish an indication for their use. Expectorant mixtures were for a similar reason discarded. Resolution occurred almost entirely through absorption, being gradual but satisfactory.

In conclusion, it may be observed that while the author is fully aware there is nothing original with him in this method of the therapeutic management of these cases, he believes the *rationale* of the course deserves a more general consideration and practical test; therefore he wishes to report the clinical results and deductions which he has drawn from his personal experience in private practice, and also desires to place himself on record as an ardent believer in this method of medication, in the hope that he may aid in causing a wider and more thorough adoption of it. Those contemplating its employment should, he believes, bear in mind one cardinal point, which will to a certainty modify the degree of success or failure attending the results. In order to insure a satisfactory issue, the two drugs—but particularly the digitalis—*must be administered boldly*.

If digitalis is exhibited in cautious or even moderate doses, the therapist will assuredly meet with disappointment or failure. Those who have adopted the treatment are unanimous in their declarations that the drugs are well borne, and fears of accumulation are demonstrated to be practically unfounded. Crowd the digitalis in *full doses* every hour until the temperature, pulse, and respiration fall to a point approximating normal, which usually occurs within eighteen or twenty hours, and the succeeding stages of the disease will in all likelihood remain within easy control.

## THE THERAPEUTICS OF ASIATIC CHOLERA.

By PAUL R. BROWN, M.D.,

MAJOR AND SURGEON, U. S. ARMY, FORT SUPPLY, INDIAN TERRITORY.

As it is possible, if not probable, that Asiatic cholera will become epidemic in this country during the coming year, I have been led to ask myself the question, In case you should be called upon to treat a case of cholera, what method of treatment would you pursue, and what would be your reasons for adopting any particular method to the exclusion of all others? In endeavoring to determine this question I have consulted the medical literature of Asiatic cholera, so far as it has been accessible to me, and, with possibly one or two exceptions, I have found no methods that are not purely empirical, and that practically there has no advance been made in the treatment of this disease for the last sixty years.

After the stage of premonitory diarrhoea has passed, almost all the various methods proposed have been equally unsuccessful, the percentage of deaths varying from thirty to seventy per cent., according to the severity of the epidemic. Thus far no rational method of treatment has as yet been proposed by therapists for the medication of this terrible scourge, with possibly one or two exceptions, which will be mentioned later on.

In answer to my own question, so far as any information which I am able to derive from the various text-books and ephemeral literature of the subject is concerned, I am compelled to make the humiliating confession that I do not know. Any method of treatment which I might adopt would be purely theoretical, yet nevertheless rational, as I should be unwilling to pursue any method that was not, at least in my opinion, based upon the indications capable of being derived from the morbid elements of the disease. Possibly such a method would be fully as unsuccessful as any of the empirical ones now in vogue, but I should, like Dr. Sangrado, have the melancholy satisfaction of feeling that my theory was correct, although the majority of my patients died.

It is now unquestionably proved that the comma bacillus discovered by Koch, if not the predisposing or proximate cause of Asiatic cholera, is invariably present in the small intestine at some time during the course of this disease, and, further, it is all but demonstrated that the development and multiplication of the comma bacillus in this *terrain*, peculiarly favorable to its evolution, is the direct

or indirect cause of the series of pathological phenomena known as Asiatic cholera. Possibly some peculiar toxin elaborated by the comma bacilli may be the exciting cause. These bacilli apparently find their environment in the small intestine, so well adapted to their development that they are only exceptionally found in other organs. The post-mortem lesions found in the intestines are comparatively insignificant, consisting essentially in a stripping off of the epithelium of the intestinal villi. Occasionally there may be some ulcerations resembling those of typhoid fever. The other organic lesions are probably due, at least the majority of them, to the general dehydration of the organism.

The essential fact in the disease appears to be a vaso-motor paralysis of the intestinal vascular system, produced directly by the bacilli or the toxine fabricated by them. This paralysis, in conjunction with the removal of the epithelium, permits the rapid dehydration of the circulation and, consequently, of the entire organism.

Nearly all the various symptoms are direct resultants of the aqueous loss through the small intestine. The general condition of shock, which is sometimes present before there is any diarrhoea or any loss of fluids sufficient to interfere with the normal functioning of the cerebrum, is probably attributable to the direct fulminating effect of the cholera infection upon the terminal nervous filaments distributed to the small intestine.

The rational indications naturally arising from the presence of the comma bacilli in the small intestine and the vaso-motor paralysis produced by them, directly or indirectly, would be as follows: First of all, to destroy the intruders *in situ*, or, if this is not possible, to weaken their development and prevent their further multiplication by rendering their environment unsuitable for their evolution; secondly, to overcome the vaso-motor paralysis caused by them, and metamorphose it into a vaso-motor contraction; thirdly, to repair the aqueous losses resulting from the general dehydration of the economy. In my opinion, at least, these are the indications which must be fulfilled if we hope to overcome the disease proper and its resulting effects, and all methods of treatment not fulfilling these indications, or endeavoring so to do, must be empirical and probably faulty, although not necessarily so.

What means have we at our command capable of fulfilling the first indication—the destruction of the microbes *in situ*—and by what channels can we reach these intruders into the intestinal economy? The means of destruction are multitudinous, but, unfortunately, the greater portion of them are homicidal as well as microbicidal in amounts capable of producing the desired effect.

With the exception of tannin and peroxide of hydrogen, there are probably no microbicides that can be administered by the mouth in quantities sufficient to produce any appreciable effect upon the bacilli of cholera without at the same time endangering life. Salol has been proposed as an intestinal microbicide, and has been unsuccessfully prescribed in cholera. It is very feebly germicidal, and can only be administered in small amounts from the fact that, after its solution by the pancreatic juice, it breaks up into salicylic acid and phenol, and large doses of it produce carbolic-acid

poisoning. At the present time we are practically limited, so far as administration by the mouth is concerned, to tannic acid and peroxide of hydrogen.

A sufficiently strong solution of tannin will destroy the comma bacillus, and this medicine is practically harmless in virtually unlimited amounts. As five grammes have been given to a rabbit without perceptible effect, we need have no fears as to its use in very large doses. The effects upon the stomach being sometimes unpleasant, and as it changes rapidly into gallic acid in that organ, it is advisable to prescribe it in such a way that its action will not commence until it has passed into the small intestine. In addition, it will then be brought in more direct contact with the cholera microbes. By making the medicine up into tablets covered with salol or keratin, we can insure its passage through the stomach undissolved. Tablets containing 0.33 gramme, or five grains, are of convenient size for administration. These tablets could be administered *ad libitum*. Four to five tablets could be prescribed hourly for several hours, according to circumstances. Tannic acid, in addition to its antiseptic effect, has a marked astringent effect which would probably be more or less beneficial. Solution of peroxide of hydrogen is unquestionably a very active and powerful germicide. One part in ten thousand is sufficient to sterilize water, but a stronger solution (1 to 1,000) is necessary to insure the destruction of the cholera bacillus. According to Gifford, the fifteen-volume solution will destroy anthrax spores in three quarters of a minute, and Mignet is of the opinion that it is more active than corrosive sublimate. It can be safely administered by the stomach in doses of four to sixteen cubic centimetres (one to four teaspoonfuls), largely diluted with water. A teaspoonful of this medicine to a quart of water will practically represent a 1-to-250 solution, or four times stronger than is necessary to destroy the comma bacillus outside the body.

It has no unpleasant effects when taken internally unless the doses are excessive and the use of the medicine is prolonged. The peroxide of hydrogen can then be depended upon to destroy any bacilli in the stomach, and perhaps also those of the extreme upper portion of the small intestine. During an epidemic of cholera it will be of value in the sterilization of water, a teaspoonful to a gallon being sufficient for this purpose. Its taste is not unpleasant, and in that amount of water it would not be perceptible.

The hypodermic and rectal methods of administration must now be taken into consideration. It is absolutely impracticable to administer hypodermically microbicidal medicines in quantities sufficient to have any appreciable effect upon the comma bacilli of the small intestine without great risk to life, and, as our object now is to destroy the microbes *in situ*, I shall not further consider them from the standpoint of this indication.

As the cholera bacilli have their habitat in the intestines, it is not a matter of astonishment that endeavors should have been made to reach them by the rectum. But, unfortunately, we are again handicapped by our inability to use sufficiently large amounts of such substances as are fatal to their existence outside the organism without greatly endangering the lives of our patients. Almost all the



germicides produce grave local effects or, by their absorption, endanger life on account of the constitutional symptoms which they induce.

On this account our choice is necessarily limited. Cantani, of Naples, has comparatively recently made use of large quantities of tannic acid in his so-called "entero-clysmic" method, his idea being to destroy the bacilli and render harmless the ptomaines elaborated by them. Four or five times a day he makes use of the following enema, injecting it as high up the bowel as possible:

Tannic acid. 10 grammes, or about 150 grains;  
Water. . . . 1,000 grammes, or about 1 quart;  
Gum arabic.. 30 to 50 grammes, or about 450 to 750 grains;  
Laudanum. . . 30 drops.

Cantani maintains that this method is absolutely successful during the first stage of cholera. His results need confirmation. Hydriodic acid has also been proposed with a view to its microbicidal effects, but I am not aware that it has ever been used. It may prove valuable if it can be used in sufficient quantity, as iodine is an exceedingly powerful disinfectant; and Hayem, in his recent work on therapeutics, gives it even a higher rank than corrosive sublimate. According to Jalan de la Croix, a 1-to-2,000 solution of iodine is sufficiently strong to kill adult bacteria in culture bouillon; and Davaine states that smaller amounts yet (1 to 150,000) will destroy the bacillus anthracis, and (1 to 10,000) the virus of septicæmia. If the cholera bacillus is as susceptible as the *Bacillus anthracis* to the action of iodine, it would be perfectly safe to use solutions of iodine for its destruction *in situ* if the statement of Davaine is correct. A solution of seven centigrammes of iodine to two thirds of a litre of water, or one grain to twenty ounces, is sufficiently strong to kill the bacillus of anthrax. Lugol's solution, or tincture of iodine in water, could be safely used in two or three times the amount recommended by Davaine. Fresh tincture of iodine should not be employed on account of the precipitation of the iodine, and as alkalis present in the intestine will form compounds with the iodine, it should be prescribed in acid solution, possibly nitric or sulphuric acid. There is a possibility that the fumes of iodine might be tolerated by the intestine for a short time.

I would most strongly suggest the use of injections of solution of peroxide of hydrogen by the rectum in cases of Asiatic cholera. There is no doubt as to its microbicidal properties and its tolerance by the system generally. A teaspoonful of a ten-volume solution to a quart of water would probably be sufficiently strong, but ten times this strength would do no harm. The enemas should be large and injected as high up the bowel as possible, the patients being placed in a posture favorable to their retention of the clysters. Whether they can be forced above the ileo-cæcal valve is questionable; but the attempt should be made. After the enema, abdominal massage should be gently practiced to bring the liquid in contact with all parts of the intestinal walls. Theoretically, great hopes may be entertained as to the favorable results of this practice, but actual trial can only prove its worthlessness or usefulness. It theoretically certainly fulfills the first indication—the de-

struction of the bacilli *in situ*. Injections of sulphurous acid gas in solution might prove valuable. According to the table of De la Croix, a 1-to-2,000 solution kills fully developed bacteria. In the abnormal condition of the intestinal surfaces there would probably be no dangerous absorption. Possibly the gas itself could be forced into the intestine, and if this were practicable and safe it would undoubtedly pass the ileo-cæcal valve and act upon the upper portion of the small intestine.

I am not aware that the use of oxygen gas has ever been recommended in cholera as a local disinfectant. I can see no objection to its use, although, even if it should prove valuable, it would be difficult to employ it outside of large cities where there would be no opportunity of obtaining the charged cylinders. Its utilization would probably only be practicable in hospitals. Oxygen gas is one of our most powerful disinfectants, and, in addition, it has a markedly stimulant effect which might be turned to advantage. There would be no practical difficulty in inflating the intestine with this gas, and probably no danger. Senn has repeatedly inflated the intestine with hydrogen gas. Other gases or fumes arising from the volatilization of various substances might be utilized.

The fumes of cinnabar would probably destroy the comma bacillus, but the effect upon the patient might be questionable. Of course it is understood that these various methods of treatment, with the exception of that of Cantani, are purely theoretical and hypothetical. They are certainly rational and fulfill the indications. Still, I am perfectly aware that experiments upon the living organism are entirely different from those made upon the culture bouillon. Many of the previously mentioned methods are based upon the germicidal power manifested by various medicines under such circumstances and are *sub judice*.

Peroxide of hydrogen, however, has proved markedly germicidal when applied to suppurating wounds and can be safely used internally. As the essential clinical fact in Asiatic cholera is the vaso-motor paralysis of the intestinal vascular system produced directly by the comma bacilli or indirectly by the toxin elaborated by them, the rational indication is, if possible, to overcome this paralysis and produce the contrary condition—a vaso-motor contraction. What medicines have we capable of producing the latter effect, and by what channels shall we introduce them into the organism? As time is an exceedingly important factor in the treatment of a case of cholera, the hypodermic method of administration of these medicines is to be preferred to all others. In addition, the stomach is frequently in such a condition that it is impossible to administer medicines by this channel.

Strychnine, morphine, and ergotine all produce vaso-motor contraction of the vessels. Nux vomica was used as long ago as 1795 by Hufeland in an epidemic of dysentery occurring at Jena, and his success was so remarkable that his practice had a host of imitators. Strychnine produces general vaso-motor spasm with rise of blood pressure and contraction of the arterioles. If the doses given are excessive, the vaso-motor spasm is followed by paralysis. Sulphate of morphine is also a vaso-motor stimulant, and the

success which has followed its administration in large doses hypodermically in cases of cholera is probably due to this action. Gscheidlen asserts that morphine stimulates the vaso-motor system, and that the arterioles of the mesentery contract under the influence of large doses of this medicine. In addition to its direct vaso-motor effect, it has a beneficial action in checking intestinal peristalsis. Ergotine is perhaps the most valuable of all the medicines producing vaso-motor contraction of the vessels, as its effect is the most lasting in this respect.

It is the verdict of physiology that ergotine produces general vaso-motor spasm with resulting contraction of the arterioles and marked diminution of their caliber, and that this contraction is comparatively permanent. The employment of ergot in dysentery and chronic diarrhœa was recommended by Dr. Fontayral, of Montpellier, in 1858, and the value of this recommendation was proved by the experience of Massolaz with French troops in the Orient. In 1871 Dr. Luton, of Rheims, again called attention to its use, he having prescribed it with marked benefit in an epidemic of dysentery.

Professor Georges Hayem, of Paris, says that ergot has frequently been successfully prescribed in intestinal hæmorrhages. The beneficial results which have followed the use of this medicine in dysentery, diarrhœa, and hæmorrhage are undoubtedly due to its vaso-motor effects. The ergotine of Yvon-Sick is preferable to that of Bonjean. It differs from that of the U. S. P. in that the essential oil is extracted with sulphide of carbon. The dose is practically the same as that of the U. S. P.—about thirty-three centigrammes (five grains). The ergotine of the U. S. P. should be dissolved in glycerin and water, the ergotine of Yvon-Sick in water alone. These doses may be prescribed hourly for an indefinite period without injury.

Piton, an eminent French physician, in hæmorrhage, lays great stress upon the ergotine injections being made in the affected region. Such being the case, it is to be recommended that in cholera they be made in the abdomen. Our two first indications having been fulfilled, we will pass to the consideration of the third and last—the repairing the aqueous losses resulting from the general dehydration of the economy. Even after the choleraic diarrhœa has ceased, the patient may die as the result of these losses. Intravascular saline injections will probably repair these losses sooner than anything else. As the result of the diarrhœa and vomiting, in cholera, the blood is particularly lacking in saline and watery constituents. The formula used by Hayem in the cholera epidemic of 1884 in France is as follows:

Distilled water. . . . .	1 litre, about a quart;
Chloride of sodium. . .	5·00 grammes, 75 grains;
Sulphate of sodium. . .	10·00 “ 150 “

Other formulæ have been used, the amounts and different constituents varying a little, but they are practically the same. Transfusions of defibrinated blood may be of value in some cases. Subcutaneous saline injections may also be used for this purpose as recommended by Pregaldino. The above formula can be used for these injections. Cantani employs subcutaneous injections similar to those of Hayem

except that they contain more chloride of sodium. Subcutaneous injections of defibrinated blood have been used by von Ziemssen in the treatment of anemia. They possibly might prove useful in cholera. All these injections should be administered at the normal temperature of the body, or possibly a degree or two higher. A theoretical method of treatment of Asiatic cholera has been sketched which certainly is rational and fulfills the principal indications. Whether it would be successful can only be proved by trial; but it certainly can not be more unsuccessful than some of the empirical ones. Of course it is well understood that the majority of cases of cholera, if taken at the very inception of the disease, will readily yield to rest and the ordinary astringent medicines. But when the disease has fully developed, when there is vomiting and rice-water discharges, all methods of treatment hitherto have been comparatively futile. The fully developed disease is only taken under consideration in the treatment outlined above, although parts of this method are equally applicable to the very first manifestations of cholera.

Taking a hypothetical case of Asiatic cholera where, for instance, there had been slight diarrhœa and general malaise for one or two days, in a robust and healthy adult, followed in twenty-four to thirty-six hours by nausea and more or less vomiting, with rice-water discharges from the bowels at frequent intervals, although symptoms of collapse had not yet made their appearance, I would suggest the following method of treatment based on the facts and suggestions previously mentioned. In the first place, a hypodermic injection in the abdominal wall of the whole of the following formula:

Sulphate of strychnine.	0·004 grm., about $\frac{1}{16}$ grain;
Sulphate of morphine. .	0·02 “ “ $\frac{1}{8}$ “
Ergotine of Yvon-Sick.	0·33 “ “ 5 grains;
Distilled water. . . . .	4·00 “ “ 1 teaspoonful.

This injection to be repeated in an hour. In succeeding injections the strychnine omitted entirely, and the morphine also if there are any signs of narcotism. Half-hourly injections of the ergotin, and, if the diarrhœa does not improve, still larger doses of the ergotin may be used.

Solution of peroxide of hydrogen, a teaspoonful to a pint of hot water, should be administered by the mouth, in small quantities, at once, to avoid exciting vomiting. A quart an hour of this strength of solution may be safely used. In case there is but little vomiting, tannin tablets, in 1·50-gramme doses, about twenty grains, hourly. Cantani's enemas of tannin, etc., every two hours, alternating with rectal injections of solution of peroxide of hydrogen, two teaspoonsful to a quart of hot water. All enemas should be given at a temperature of 38° to 40° C., 100·4° to 104° F. Where oxygen gas can be procured, inflation of the intestine is well worthy of trial. The other procedures above mentioned may be employed in case of failure of those just recommended. Complete rest of body and mind should be enjoined in all cases.

I am of the opinion that the measures noticed above will ordinarily prove successful. In severe and desperate cases the employment of subcutaneous injections and transfusions of saline solutions is to be recommended. Transfusion of

defibrinated blood may be of some service. It is exceedingly difficult to formulate a treatment for every case, and much will depend upon the judgment of the practitioner. The above outlined plan may prove to be worthless. Until such time I shall employ it unless some more rational one may be proposed.

## PROBES AND PROBING.\*

By JOHN HARVEY GIRDNER, M. D.

THE frequent failure attending the operation of probing for the bullet in gunshot wounds is, I think, sufficient excuse for asking your attention for a few minutes to a procedure ordinarily considered of minor importance.

Whether it is better surgery to locate and remove the bullet in gunshot wounds or allow it to remain is not under discussion; but I may say, in passing, that my observation has been that in the cases where it was thought to be a good thing to allow the bullet to remain in the body, this conclusion was not reached until all the ordinary methods to locate and remove it had been tried and failed.

That eminent American surgeon, Professor Samuel D. Gross, wrote: "The probe, from its great usefulness, may almost be considered as another finger." When we use an ordinary probe in the examination of a gunshot wound, we depend entirely on the sense of touch to inform us of the exact location of the bullet. We can determine in this way with fair accuracy the consistence of objects our probe finds in the wound, as soft or hard; but the sense of touch leaves us ignorant of what a given object we feel is composed of—whether it is bullet, bone, or some other substance of like consistence.

The porcelain-tipped probe was devised with the hope of aiding in distinguishing between hard masses found in gunshot wounds, by the presence or absence of lead markings on the porcelain tip; but it is found that so much rubbing against the bullet is required to produce lead markings sufficiently distinct as not to be effaced by the fluids and tissues in withdrawing the probe from the wound, that, except in rare instances where the bullet is favorably located, this instrument is of no practical use. I ought to say that this opinion of the Nélaton probe is not based alone on my own experience and experimentation with it, but coincides with the opinions of a number of eminent military surgeons both here and abroad who have favored me with replies to inquiries as to their experience with it.

There is another difficulty—and it applies to all ordinary probes yet devised—viz., the tortuous course often taken by the bullet through the tissues to its final destination. When the track of the missile is a series of curves and angles, which it not infrequently is, it is simply impossible to cause a probe to follow it.

I recognize the fact that no man has the right to criticize and play the part of an iconoclast unless he has something better to offer than that he would set aside, and in the instrument which I shall presently show and allow you

to test I think we have a probe which overcomes all the defects pointed out in the old method of probing gunshot wounds.

In using the telephonic bullet probe we substitute the accurate sense of hearing for the uncertain sensations communicated to the hand by the ordinary probe. No battery is used and the current which operates the instrument is supplied from the body of the patient operated on. Its construction is simple and I will describe it. Take a receiver like that held to the ear when conversing over an ordinary telephone; and to one of its binding posts attach a wire three feet long, and to the other end of this wire attach a bulb of aluminum of such a size as to be conveniently held in the patient's buccal cavity between the teeth and cheek. To the other binding post attach a similar wire, and to the free end of this second wire attach a probe also made of aluminum, and the instrument is complete.

To use it, place the aluminum bulb in the patient's buccal cavity, hold the receiver to your ear with one hand and with the other probe the wound, and you will hear no sound until the probe touches the bullet, and you will then hear a distinct clicking, grating sound in the receiver, and you know beyond all doubt that you have found the lead. If the track of the bullet is tortuous and your probe can not be made to follow it, you have only to substitute a steel bulb for the aluminum one and a delicate tempered steel needle for the aluminum probe, and, instead of trying to follow the track made by the bullet, you thrust the needle into the tissues in the area where you suspect the bullet to be, just as you would a hypodermic needle, and continue to do so until you hear the noise in the receiver, and the needle will serve as a guide to cut down and remove the missile.

In order that you may test the instrument, I will place the bulb in this boy's mouth, and after moistening one of his hands I will place a bullet in it, together with a piece of bone, and you will find that when the bone is touched with the probe you will hear no sound in the receiver, but the slightest touch on the lead produces a distinct clicking, rasping sound.

I am pleased to be able to tell you that after much trouble I have at last succeeded in having these instruments made, and they are now for sale by the W. F. Ford Manufacturing Co. and by Tiemann & Co., both of this city.

## FOREIGN BODY IN THE TYMPANUM.

By H. E. GREENE, M.D.,

CRAWFORDSVILLE, IND.

ALTHOUGH the practical importance of peculiar cases may not be great, yet they are always of interest, and there are few of us who do not take more pleasure in a case the like of which we never expect to meet again than in one of common occurrence and consequently of far more real value. It is in the hope of interesting rather than instructing that the writer reports a case which lays no claim to anything new either in the line of diagnosis or treatment:

\* Read before the Section in General Surgery of the New York Academy of Medicine, November 14, 1892.



Near the middle of March, 1892, Mr. C. G., a farmer, called at our office and gave the following history: Ten days previous while walking over his farm, he had met with a peculiar accident. Mr. G. is a cripple, one leg being several inches shorter than its fellow, and as a result the gentleman walks with a rolling gait that gives his body a lateral to-and-fro movement. As he was passing a clump of alder bushes he suddenly felt what seemed to be a terrible blow in the ear. He almost fell to the ground, and it was several seconds before he could overcome the impression that some one had struck him and realize that a twig from the alder bushes had penetrated his ear. The pain was intense and he became so dizzy that he staggered on his way to the house. In the course of a few hours the pain stopped and he had experienced no inconvenience since, but, as he happened to be passing the writer's office, "thought he would drop in and see if it was all right."

Upon examination, the canal and membrana tympani were perfectly normal except for a faint streak just posterior to the handle of the malleus, which looked as though a paracentesis had been done and union by first intention obtained. The hearing was almost normal, and, in the absence of symptoms, the opinion was expressed that he would have no further trouble.

About three weeks later Mr. G. called again with the information that his ear had been paining him and was discharging. A perforation was discovered at the bottom of the membrane *below the original seat of injury*. The presence of a foreign body was at once suspected, but, as the opening was very minute and the diagnosis uncertain, thorough exploration was not possible or justifiable.

The routine treatment for purulent otitis media was given, and in a few days the discharge apparently ceased and the patient was lost sight of. A month later he reappeared and complained that the discharge had soon returned and had continued ever since. His hearing was very poor, the discharge offensive, and the middle ear seemed full of granulations. The possibility of a foreign body was again suggested, but the patient refused to have the opening made larger, and the next week was spent in snaring, scooping, and scraping away granulations which sprang up almost as fast as they were removed. Improvement was not marked and Mr. G. went to a neighboring city and consulted one of the most eminent aurists in the country. He returned with the opinion that the ear contained no foreign body, and a letter advising a continuance of the treatment he had been receiving. The writer went to work with renewed zeal and spent another week or two fighting granulations. One day, while syringing out the ear after a particularly thorough scraping, a dark speck was noticed in the water returning from the ear. It was very small and the use of a microscope was required to determine that it was a fragment of bark.

When the patient returned next day the perforation in the membrane was slightly enlarged and a fine stream directed into the middle ear. Almost immediately a dark object presented itself at the opening. It was easily seized with the forceps and removed. The cause of all our trouble proved to be a twig of alder ten millimetres long and two millimetres in diameter.

Six months later I saw the patient. The discharge had stopped, the opening had almost entirely closed, and his hearing was very good.

**The Medical and Surgical Society of Baltimore.**—The programme for the meeting of Thursday, the 23d inst., contained the announcement of a paper on *A Case of Probable Meningeal Hemorrhage with Symptoms resembling General Paresis*, by Dr. George J. Preston, and of one entitled *Remarks on an Interesting Case, with Recovery*, by Dr. Hiram Woods.

THE

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## NITROGLYCERIN.

RECENT exploits in the field of medicine by secular journals might lead some to conclude that a new and wonderful discovery had been made by the medical profession in the therapeutic use of this powerful explosive. How far this is from the truth every educated physician well knows. We have been aware of its properties since 1858, when Field, Harley, and others published the results of their experiments with it, but even with this long experience it can not be said that the profession at large understands thoroughly its physiological action and therapeutic indications. We all know in a general way that it is a heart stimulant, but when to use it, how to use it, and how much of it to use are not so well known. Nitroglycerin is a transparent liquid, soluble in alcohol, in ether, in oils, in fats, and slightly in water. It is administered either in solution or in pill. The dose laid down in the books is from  $\frac{1}{10}$  to  $\frac{1}{5}$  of a grain, but of this we shall speak farther on. Its physiological action is similar to that of nitrite of amyl, but it is more powerful and its effect is less transitory. It is absorbed undecomposed, and decomposition, due to the alkalies in the blood, taking place within the vascular system, nitrous acid is set free in a nascent state. It is distinctly a muscle poison, acting upon the spinal cord before the cerebral ganglia, and applied to the exposed heart of a frog, it arrests it in diastole at once. It causes in mammals "great depression with *very rapid pulse* and respiration, paralysis of reflex action and voluntary motion, loss of sensation, and death by stoppage of respiration" (Brunton). It reduces the blood pressure rapidly and effectively, and improves the circulation by reducing the resistance that the heart has to overcome, and by stimulating the cardiac muscle itself. Both the *force and number of the beats* are increased. It decreases the oxidizing power of the blood and reduces bodily temperature by thus limiting oxidation. From this it may be seen that the drug is applicable to cases of cardiac weakness or failure accompanied by full veins and *high arterial pressure*. Thus, in cases of threatened hæmorrhage, in phthisis pulmonalis, in typhoid fever, in apoplexy, its use would be strongly indicated, and experience has shown its exceeding value in such cases. In the early stages of pneumonia, where the arterial tension is high and the venous system congested, and where no very large area of breathing space has been obstructed, it would be indicated, but it is questionable if its use is advisable in the later stages, when the heart's action is already too rapid and the oxidation of the blood deficient. Digitaline or strychnine would then seem to meet the indications better.

It is a powerful but not an irritating diuretic. Murrell has reported a case in which the urinary secretion was increased from fourteen drachms and a half to fifteen ounces in half an hour by a dose of twenty minims of the one-per-cent. solution. This action of the drug will explain its favorable influence in Bright's disease, uræmia, uræmic asthma, and allied conditions. In nervous affections, headache, neuralgia, epileptic vertigo, and epilepsy, in angina pectoris, gastralgia, hepatic and renal colic, and puerperal convulsions, it has been used with almost universally good effects—i. e., when scientifically administered; but our imperfect knowledge of the pathology of these conditions precludes our understanding the action of the drug in controlling them. In fatty degeneration of the heart, in the feeble heart of old age, and in general failure of health in persons whose weak, small pulse and peculiar pallor indicate habitual fullness of the venous system, nitroglycerin is one of the most effective therapeutic agents at our command.

In angina pectoris, however, it has produced the greatest benefits, and some consider it almost, if not quite, a specific in this disease. Pushed to its physiological effect, it not only relieves but prevents the attacks, and, fortunately for the sufferers, it acts so rapidly that it may be taken upon the first indication of an approaching paroxysm, and thus prevent it.

Recently the drug has been shown to be useful in asphyxia from illuminating gas. Avery (*Med. Age*, Feb. 25, 1891) and Hoffman (*Allg. med. Centr.-Zeit.*, 1891, No. 13) have each reported cases of gas poisoning in which it was efficient after other remedies had failed. The former used a tenth of a grain and the latter a sixty-fourth of a grain hypodermically. There were no unfavorable effects in any of the six cases reported, and all the patients made good recoveries. So far it has proved successful in all these cases, and we may well give it a more extended trial.

In Bright's disease it is said to reduce the amount of albumin in the urine; but sufficient observation has not yet been made to determine whether the total excretion is diminished or only the percentage owing to the increased secretion of urine.

In connection with elaterium, nitroglycerin has been said to be useful in myxœdema.

As with all powerful agents, its best effects are produced only when it is in the hands of an accomplished therapist. It can not be said to have been tried until it has been pushed to its physiological effects. In normal conditions these are often produced by exceedingly small doses, but in pathological conditions it is sometimes remarkable how much it will take to produce them. Pushed to this point, it produces a sense of fullness in the head and at the base of the brain, singing in the ears, and a sort of pulsation about the neck and head, especially at the root of the nose, as if epistaxis were threatened. It produces its maximum effect, according to Korzinsky (*Schmidt's Jahrbuch.*, xciii, p. 132), in fifteen minutes, and should therefore be administered frequently until its action is apparent. Two minims and a half of the one-per-cent. solution given to a lady for neuralgia have been known to produce faintness, pallor, stertorous breathing, and unconsciousness for a few min-

utes. She soon recovered from the effects, however, and the neuralgia was cured. Hare, in his text-book on therapeutics, says that no more than a fiftieth of a grain should ever be used, but those who habitually employ the drug find that such a dose is rarely sufficient to produce its effects. In one of the hospitals of New York the initial dose is said to be four minims of a one-per-cent. solution, and this is increased every hour until the physiological effects are produced or relief is obtained. The writer has frequently given twenty minims of the one-per-cent. solution, and in one case gave thirty minims every two hours for seven days without producing any marked physiological effects, but with good results so far as recovery was concerned. Brunton says the dose may be gradually increased from one two-hundredth to one tenth of a grain. Huchard employs it constantly in doses of a thirtieth of a grain and upward, and Murrell gives as high as a fifth of a grain, as has already been stated. No cases of death, so far as we can find, have been reported from the therapeutic use of the drug.

It will thus be seen that those who have obtained the best results from this drug have used it in larger doses than is generally supposed. A minim of the one-per-cent. solution is the ordinary initial dose. This should be repeated every half-hour, and, if no effects are produced by three doses, it should be increased one drop every hour until they are. The drug is not cumulative, and its toxic effects are so marked that there is little danger of their being overlooked. In all the cases in which these symptoms have been reported as alarming the patients were promptly relieved by alcoholic stimulation. Those who have had experience with the drug in gas asphyxia advise beginning with moderately large doses—a fiftieth of a grain or more.

#### AMUSIA.

THE term amusia, recently introduced into medical nomenclature, may be said to denote with regard to the musical faculty about what the word aphasia, in its most comprehensive use, imports with regard to the faculty of speech. Some interesting examples of loss or impairment of the ability to produce or to comprehend music are on record, and a condensed account of the more important observations bearing on the subject is given in a *revue générale*, by Dr. Paul Blocq, published in the *Gazette hebdomadaire de médecine et de chirurgie* for February 25th.

Aphasia is not always accompanied by amusia, as was mentioned by Bouilland so long ago as in 1865. There is a well-known story of a certain aphemic who sang the *Marseillaise* with the only articular sound that he could make, and Bernard speaks of an aphasic who sang that melody and the *Parisienne* with the substitution of *tan, tan, tan* for their proper words. Proust had a patient who could write music, although incapable of reading it. A still more curious case was recorded by Grasset in 1878, that of an officer who, while he could articulate only *pardi* and *b* in his attempts to speak, could sing the words of the first verse of the *Marseillaise* with the utmost correct-

ness. Charcot's authority is given to the story of a trombone-player who lost his capability of performing on the instrument, although he had preserved all his other faculties.

Bloq credits Knoblauch with having established the autonomy of such a pathological state as amusia in 1888. In 1891 Wallaschek made an important classification of the varieties of amusia, distinguishing motor amusia, in which the patient comprehends music, but has lost the power of singing; sensory amusia, in which the subject can no longer distinguish sounds; paramusia, in which the subject sings, but with mistakes in time and note; musical agraphia, or loss of the power to write notes; musical alexia, loss of the ability to read music; and musical amimia, loss of the power of playing on an instrument. Bloq, like Onanoff, adopts an analogous classification, distinguishing a receptive, or sensory, amusia and a motor, or expressive, amusia, the former including auditory amusia and musical alexia, and the latter comprising true amusia (loss of the power of singing), musical amimia, and musical agraphia. True sensory amusia may be termed musical deafness, and musical alexia may be called musical blindness.

Concerning the pathological significance of amusia almost everything is yet to be learned, but it is certain that Bloq has, by his analysis of the data now in our possession, done much to facilitate the necessary investigation.

## MINOR PARAGRAPHS.

### THE TREATMENT OF CHOLERA.

THE *Gazette des hôpitaux* for February 25th contains a cyclopædic article on this subject by one of the hospital physicians of Paris, Dr. L. Galliard. Summarizing, in conclusion, he says that in slight cases, cases of *cholera léger*, rest in bed and abstinence from solid food are almost all that is required. In grave cases, however, the precursory diarrhoea should be treated energetically. If this diarrhoea can not be cut short, no time should be wasted in trying opium or such feeble antiseptics as the salts of bismuth, for example, but recourse should be had at once to one of the two remedies which commend themselves to our confidence. These are calomel and lactic acid. They should not both be used, but one or the other be chosen. If it is calomel, acid drinks are to be avoided. If there is a tendency to collapse and cyanosis, hot baths are to be employed, together with frictions, subcutaneous injections of ether and caffeine, and inhalations of oxygen. If there is algid collapse, with the radial pulse imperceptible, transfusion should be used. The proper drinks are iced aerated waters, champagne diluted with water and iced, and very weak iced coffee. Neither milk, nor soup, nor alcohol should be given before the stage of reaction. Tea often causes vomiting. If the use of milk and other alimentary substances is allowed too soon, the danger of relapse is incurred. The use of ass's milk is of service in the gastric irritability of convalescents; so is that of peptonized enemata. In spite of their impatience, convalescents must be kept in bed for a long time.

### THE TEUCRINE TREATMENT FOR LOCAL TUBERCULOSIS.

According to the *Medical Week*, at a recent meeting of the Vienna Medical Club Professor von Mosegt-Moorhof described a new treatment for local tuberculosis by injections of an extract of *Teucrium scordium* (water-germander), to which he has

given the name of teucrine. The extract is prepared from the dried plant by lixiviation with hot distilled water, the liquid being evaporated to the consistence of honey, then repeatedly washed with alcohol, and concentrated until its specific gravity reaches 1.150. Teucrine is a brownish-black liquid having an acid taste and a cabbage-like odor. It has an acid reaction and is soluble in water. It contains certain sulphates, especially calcium sulphate. Administered internally in doses of eight grains, it excites the appetite and acts as a stomaclic tonic. The reaction produced by the subcutaneous injection of this extract is both general and local, the former being manifested by a rise of temperature that may reach 101.3° to 104° F. and is often preceded by a rigor. The site of the injection becomes red, painful, and oedematous. The therapeutical effects vary according to the presence or absence of caseous degeneration in the tubercular manifestation. With the first condition the injection gives rise to an acute inflammation followed by rapid breaking down and destruction of the affected tissues; with the second, the tuberculous material becomes absorbed. A cold abscess is transformed into an acute abscess in forty-eight hours, and may be cured in from eight to ten days provided it is not connected with diseased bone. In the latter case a fistula forms that is healed more slowly. These results are usually obtainable by a single injection of forty-five minims of teucrine, and the cure is permanent in von Mosegt-Moorhof's experience. The same effect is produced in acute or chronic adenitis by a single injection, the inflammation gradually subsiding if the glands are not caseous. Favorable results have also been obtained in lupus and in actinomycosis.

### POTASSIUM IODIDE IN THE TREATMENT OF ACTINOMYCOSIS.

In a government report prepared by Dr. D. E. Salmon, of the Bureau of Animal Industry, there are recorded very favorable results of the use of potassium iodide in the "lumpy-jaw" of cattle. Ordinarily, where there is a hard tumor as large as a hen's egg, it will subside within two or three weeks under the action of about 150 grains of the iodide daily. The employment of the remedy need not be continued until the disease has wholly disappeared; when the tumor has shrunk to about a third of its original volume the work of cure will go on without the further administration of the drug. The treatment is the most efficacious when decided iodism is produced.

### STUDENTS' EXPENSES AT HARVARD.

The secretary of Harvard University, Mr. Frank Bolles, has issued a pamphlet consisting of a collection of letters from undergraduates, graduates, and professional-school students, "describing in detail their necessary expenses at Harvard University," together with an introduction in which many of the statements made in an address by Professor George H. Palmer in 1887 are so supplemented as to make them apply to the present time. Only one of the letters seems to have been written by a medical student. That gentleman's entire expenses for the year 1891-'92 were \$337.60. He adds that he would not advise any other person to make the attempt at quite so low a figure, but that from \$300 to \$350 should make one quite comfortable.

### ADDISON'S DISEASE WITHOUT LESION OF THE SUPRARENAL CAPSULES.

At a recent meeting of the *Société des sciences médicales de Lyon*, reported in *Lyon médical* for February 26th, M. Roux, a hospital interne, presented some specimens from the body of a



man who had died of tuberculosis after having shown abundant signs that he was the subject of Addison's disease. The tuberculosis was found to affect the cervical lymphatic glands, the larynx, and the peritonæum, but not the lungs. The suprarenal capsules appeared absolutely healthy, although, on section, some diminution of their medullary substance was observed. The left semilunar ganglion was so imbedded in adhesions that it was impossible to extricate it, and the case was thought to favor the theory of the nervous origin of Addison's disease.

#### PRURIGO SECANDE.

THIS affection, the *furie opératoire* of the French, is said to be more prevalent in France than elsewhere at present. Several well-known surgeons of that country have deplored it in the *New York Herald*, presumably the Paris edition, according to the *British Medical Journal's* Paris correspondent. Professor Le Fort says that the young French surgeons are accustomed to seek out some operation unknown in France, and then search for a victim on whom to perform it, in order that they may report the case before a medical society and perhaps show the patient. Thereupon they take up the operation as a specialty, perform it on a hundred or two hundred patients, and thus gain a reputation. Professor Verneil thinks this practice is particularly prevalent among callow gynæcologists.

#### BENZOSOL AS A REMEDY FOR DIABETES.

THE *Lancet's* Vienna correspondent says that benzosol, or benzoyleuguaicol, has lately been recommended by a Cracow physician as a very useful remedy in diabetes mellitus. From fifteen to forty-five grains are to be given daily. Professor von Jaksch is cited as reporting a case in which the use of the drug was followed by the cessation of glycosuria, but caution in its employment is evidently necessary, for the patient spoken of by von Jaksch is reported to have died in consequence of a toxic enteritis attributed to its action. Moreover, a Vienna chemist is said to have stated that it renders diabetic urine laevorotary, and thus tends to vitiate polariscopic examinations of such urine.

#### THE COMMUNICATION OF MORBID MENTAL CONDITIONS TO ANIMALS.

At a recent meeting of the Paris Société de biologie, reported in the *Progrès médical* for March 4th, M. Féré spoke of some curious cases of *folie communiquée* in dogs of degenerate races which, living with mistresses affected with certain forms of insanity, had adopted their morbid emotional conditions. For example, they had become agoraphobic, and no longer dared to cross a street, and they could not endure certain odors. This communicated mental state had been quite similar to that observed in man, and had been cured by the same treatment— isolation.

#### EPIDERMIN.

ACCORDING to the *American Therapist*, this is the name of a bland liquid, of unknown composition, the watery part of which evaporates when it is applied to a part, leaving a protective film. A very satisfactory substitute may, it is said, be made with equal parts of white wax, powdered acacia, glycerin, and distilled water. The wax is melted, and the acacia is triturated with it in a warm mortar; then the glycerin and water are mixed and heated to the boiling point, the mixture is added to the wax and acacia, and the whole is stirred until it has cooled.

#### THE USE OF PURGATIVES IN NURSING WOMEN.

IN the March number of the *Practitioner* Dr. William J. Gow alludes to a popular impression that purgatives administered to a nursing woman often lead to disturbance of the suckling's bowels, gives a condensed account of his own experiments with several of the ordinary purgatives, and expresses his conclusion that magnesum sulphate administered to a nursing woman frequently causes looseness in the child, while senna, cascara sagrada, and aloes rarely have that effect.

#### OOPHORECTOMY AS A REMEDY FOR OSTEOMALACIA.

THE *Gazette hebdomadaire de médecine et de chirurgie* for March 11th makes brief mention of a report of two cases, published by Dr. Stern in the *Münchener medicinische Wochenschrift*, 1893, No. 6, of puerperal osteomalacia in women, aged respectively twenty-seven and thirty-one years, in which a radical cure was effected by means of oophorectomy. The ovaries showed no abnormality, but the vascularity of the annexa was extreme and the vessels were as much developed as in women at the close of pregnancy.

#### TRIONAL AS A HYPNOTIC.

IN the March number of the *Journal of Nervous and Mental Disease* there is a summary of an account given by Dr. Brie, of Bonn, in the *Neurologisches Centralblatt*, 1892, No. 25, of his experience with trional. In forty-two cases of insanity he has given 360 doses ranging from fifteen to forty-five grains. He believes it to be the best of hypnotics, being almost tasteless, easily administered, acting rapidly, and rarely giving rise to unpleasant after-effects. Its use is indicated in simple insomnia and in that of insanity with restlessness and excitement.

#### ELECTRICAL ILLUMINATION OF THE MOUTH.

ACCORDING to the *Medical Press and Circular* for February 22d, Mr. N. Stevenson has found that when an incandescent light is introduced into the mouth, for the purpose of ascertaining by translumination the condition of the maxillary antra, this introduction of light "by a back door, as it were," has not the effect of causing the pupils to contract, although to the observer the pupillary orifices appear as blood-red apertures. The author suggests that this observation may come to have some ophthalmological significance.

#### METHYLENE BLUE IN MALARIAL DISEASE.

ACCORDING to the *Medical Week* for February 10th, Dr. Guttmann stated at a recent meeting of the Berlin Medical Society that the failures that had been reported of any therapeutic action of methylene blue in malarial disease had possibly been due to the use of an impure preparation of that drug. He said that in doses of a grain and a half, administered in capsules every two hours and continued for at least four weeks, there would be a reduction in the size of the spleen and relief of the malarial symptoms.

#### PROLAPSE OF THE PLACENTA.

THE *Mercredi médical* for March 8th gives a summary of an account by Dr. Feinberg, published in the *Centralblatt für Gynäkologie*, 1893, No. 5, of a case of prolapse of a normally implanted placenta. The prolapse occurred immediately on the rupture of the membranes, but the author was not called to the case until an hour later, when the child was dead. The placenta was normal, and the mother had always been healthy.

## ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 21, 1893:

DISEASES.	Week ending Mar. 14		Week ending Mar. 21.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	11	4	10	5
Typhoid fever.....	24	7	21	8
Scarlet fever.....	158	21	161	12
Cerebro-spinal meningitis.....	5	7	12	5
Measles.....	118	9	111	7
Diphtheria.....	103	41	97	50
Small-pox.....	10	2	6	2

**Meetings of State Medical Societies for the Month of April.**—Florida Medical Association, Jacksonville, 4th; Medical Association of the State of Alabama, Tuscaloosa, 8th; Medical Society of the State of Tennessee, Nashville, 11th; Medical Society of the State of California, San Francisco, 18th; Medical Association of Georgia, Americus, 19th; Mississippi State Medical Association, Jackson, 19th; Medical Association of Montana, Great Falls, 19th; Medical and Chirurgical Faculty of Maryland, Baltimore, 25th; South Carolina Medical Association, Georgetown, 28th.

**Salts and Senna mitigated.**—*Lyon medical* gives the following formula: Infuse 10 parts of senna and 15 parts each of magnesium sulphate and roasted coffee in 120 parts of boiling water, strain, and sweeten.

**The Richmond, Va., Academy of Medicine and Surgery.**—At the next meeting, on Tuesday evening, the 28th inst., Dr. William J. Gordon is to read a paper on Transfusion, and Dr. Landon B. Edwards is to open a discussion on The Management of Abortion.

**Cook County Hospital, Chicago.**—At the recent annual competitive examination for the positions of interne at this institution eight positions were secured by E. H. Tinen, F. A. McGrew, R. B. Oleson, J. J. Clausen, G. W. Skinner, T. J. Williams, T. P. Findley, and T. A. Olney, in the order named.

**The Long Island College Hospital.**—The annual commencement exercises were held in the Brooklyn Academy of Music on Wednesday evening, the 22d inst. The programme announced an address by Dr. Alexander Hutchins.

**The Death of Dr. Laurence Johnson** took place on Saturday, the 18th inst., as the result of pneumonia. The deceased, who was in the forty-eighth year of his age, was an esteemed practitioner and known as an accomplished botanist.

**The Death of Dr. Frank Harold Ingram** took place on Friday, the 17th inst., from angina pectoris. The deceased was a promising practitioner. At the time of his death he was only thirty-three years old.

**Society Meetings for the Coming Week:**

**MONDAY, March 27th:** Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

**TUESDAY, March 28th:** New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); New York Otological Society (private); Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly), N. Y.; Boston Society of Medical Sciences (private); Richmond, Va., Academy of Medicine and Surgery.

**WEDNESDAY, March 29th:** Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

**SATURDAY, April 1st:** Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

**Answers to Correspondents:**

**No. 398.**—Any wholesale grocer ought to be able to furnish you with both articles.

**No. 399.**—The president of the association is Dr. Daniel Lewis, No. 249 Madison Avenue.

**Letters to the Editor.****THE QUESTION OF INFECTED RAGS.**

NEW YORK, March 21, 1893.

*To the Editor of the New York Medical Journal:*

SIR: I have read with much interest the report of Dr. Paul Gibier, reprinted in your issue of March 18th from the *New York Herald* of March 9th, giving the result of his bacteriological examination of certain rags. Dr. Gibier's report is interesting to the non-professional man because it states in logical order, with admirable conciseness and in language of precision, the various steps and noted results of a scientific process.

In conclusion, Dr. Gibier appends his deductions: 1. That the rags probably came from a hospital or dispensary, that they were soiled with pathological liquids, and that they had not been subjected to effective disinfection. 2. That the number of living germs in the two grammes examined was not less than four hundred million.

I should like to call attention to the admirable scientific caution of Dr. Gibier. The *Herald* put above his report the headline *Bacteria Found in German Rags*. Dr. Gibier, it will be observed, declines to assume any responsibility as to the origin of the rags. In his report he certifies merely that "on January 5th I received for bacteriological examination a sealed envelope which contained some fragments of rags *as coming from* Bremen, Germany, on the steamship *State of Alabama*, December 10, 1892." That is, the rags were alleged to be of German origin.

I beg leave to point out, in the absence of any evidence that the rags in question ever came from Germany or were a part of the Alabama cargo, that the result of Dr. Gibier's examination has no bearing in determining questions of sanitary policy with regard to the importation of rags or in respect to the efficiency of disinfecting processes now in use. As there is no testimony concerning the history of the rags, the question of their origin opens up a wide field for curious conjecture.

Permit me to append the following comment upon this examination by Deputy Surgeon-General Sternberg, of the United States Army:

"I have carefully read Dr. Gibier's report, and have no doubt that he found the various bacteria described by him in the sample of rags submitted to him for examination, but he does not claim to have found any specific disease germ. The kind of bacteria he describes are constantly found on the surface of the bodies of healthy persons. Millions of similar bacteria are attached to the soiled underclothing sent to the wash by the most cleanly persons. It is safe to assert that Dr. Gibier would have obtained the same results from rags picked up anywhere in this city."

AUGUSTINE SMITH.

**THE SKILLED WITNESS IS ENTITLED TO A FEE.**

MEADSVILLE, Pa., March 1, 1893.

*To the Editor of the New York Medical Journal:*

SIR: In the trial of Dr. E. C. Quimby yesterday for malpractice in treating a fracture of the olecranon and of the neck of the radius, in the Crawford County Court, in which Dr. Quimby

was acquitted, Dr. Theodore J. Young, of Titusville, Pa., was called by the prosecution as an expert witness.

After the doctor had answered the preliminary questions as to his graduation, length of time in practice, etc., the plaintiff's attorney requested him to examine the young man's arm and state to the Court and jury his opinion of the case. Dr. Young promptly answered: "I decline to examine the arm."

As he was leaving the witness stand the plaintiff's attorney asked him to give the Court his reasons for refusing to examine the case. He said: "Mr. Richmond, I am an expert. I have given years of hard study to acquire my medical knowledge and have spent much money, and I decline to be brought here to give testimony without an expert's fee." The doctor then left the court room.

The doctor's refusal to testify in this case should meet with the approval of all fair-minded men, and I have written out an account of this case to let it be still more widely known among medical men that they can refuse to testify in Court in cases where they have not received a fee before they go on the witness stand which shall compensate them for the time they shall spend in giving expert testimony.

W. D. HAMAKER, M. D.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

*Meeting of March 7, 1893.*

The President, Dr. M. ALLEN STARR, in the Chair.

**Clonic Spasm of the Muscles of Mastication.**—Dr. FREDERICK PETERSON presented a woman, aged fifty-seven, who six years before had had all her upper teeth removed and artificial ones put in. The first set did not fit well, and a new one was substituted. The work about the mouth, and the necessity for keeping her mouth open for long periods of time while she was in the dentist's chair, resulted in the development of this spasm. When she was sitting quietly, not using the jaw muscles, there was a continuous clonic spasm of the masseters, temporals, and pterygoids. The jaw opened and shut slightly and moved from side to side. She was tired and worn out with trying to keep her teeth together. The chief difficulty, however, was when she attempted to speak; then the mouth opened wide and there was a subluxation of the jaw downward and forward from the glenoid cavity. During the first six months the mouth would not close at all, except at night, when the spasm relaxed.

Dr. Peterson said that while tonic spasm of the masticatory muscles or trismus was quite a common symptom, the condition presented in this case was very rare. As regarded treatment, atropine, hyoscyne, conium, and electricity had been used perseveringly without any special effect. Latterly sulphate of duboisine, in doses of one two-hundredth of a grain, three times daily, had afforded much relief by quieting the spasmodic movements almost wholly at times. In addition she wore an apparatus made especially for her, which kept her jaw closed and allowed her to talk between her teeth without the uncomfortable tonic spasm of the depressors of the jaw, although the clonic movements of the masseters and pterygoids might keep on as before. The movements ceased at night. The affection had lasted nearly seven years.

Dr. WILLIAM M. LESZYNSKY had seen a case of clonic spasm of both platysmata following prolonged work upon the patient's

lower jaw by a dentist. The spasm in that case lasted only three or four days. Slight spasm of the jaw muscles after dental operations was not uncommon.

**Rhythmical Spasm of the Limbs.**—Dr. EDWARD D. FISHER presented a woman, aged forty-three, who, having always before enjoyed good health, had begun about a year before to have attacks of rhythmical spasm of the limbs. The spasm was sometimes confined to one or both arms or to the lower extremities, but the motion sometimes involved all the limbs at the same time. The attacks came on spontaneously and lasted about five minutes. A number of such attacks might occur during the day, or she might remain free from them for a day or two. The muscles were becoming more rigid and it was very difficult to bend the elbow or move the arm. The woman had no general symptoms, but complained of fatigue. The muscles of the arm were becoming decidedly developed. Various methods of treatment, hypnotism included, had been employed without apparent effect. Under hypnotism she had all four extremities moving violently. Her sight was apparently normal. It seemed to be impossible for her to control the spasm. There was no analgesia. The speaker considered hysteria to be the basis of the attacks.

Dr. PETERSON, in reply to a question, said he did not think that duboisine would prove of much value in this case, which was probably hysterical.

Dr. MARY PUTNAM JACOBI referred to cases of head-jerking in children. The rhythmical movements sometimes seen in such cases she considered rather analogous to those in the case presented.

**Innervation and the Functions of the Sympathetic Nerves.**—Dr. J. E. CULVER read a paper with this title. He reviewed at length the distribution and functions of the sympathetic nervous system, and traced the relationship between its disturbed action and interference with respiration, oxidation of the blood, and other physiological processes.

**Basedow's Disease.**—Dr. WILLIAM H. THOMSON read a paper on this subject. He began by stating that the progress of pathology often illustrated the disadvantage of the premature naming of diseases after some of their common or prominent symptoms, for further knowledge might show a disease to have much wider relationships than had at first been suspected, and in some cases to exist without these symptoms being present. If such was the case, the symptomatic name might then operate to prevent a correct diagnosis. The name exophthalmic goitre had had much influence in preventing the recognition of Graves's disease in many instances, and still more in confusing the views of its pathology. In reading the numerous contributions on the pathology of this interesting affection, it was striking to note how predominantly the conception of some textural lesion in the nervous system that would account for the exophthalmia and the goitre had diverted either the investigation or the speculation, in seeming forgetfulness of the fact that these symptoms were not essential to the affection, because they might both be present with Graves's disease absent, or both absent with Graves's disease present. The safest rule to follow in pathological problems was to seek first for the most constant characteristics of a given complaint, rather than for the most obtrusive ones. Thus the most uniform condition in Graves's disease was what might correctly be described as a state of marked agitation. In many instances it was for a long time a purely physical state, not involving the mind or the spirits, and yet the patient acted as if greatly alarmed about something. This had led many writers to pronounce fright to be a leading cause of the disease. We were thus at the outset diverted from the study of a truly characteristic condition to that of a mere occasional element in the clinical history of the affection. While fright might be the oc-



casion of the first manifestation of chorea or of Graves's disease, a blow the occasion of the development of a mammary cancer, etc., it was only a hindrance to our progress toward a correct pathology of these diseases to put down any one of the varying occasions of their first manifestation as their cause.

Dr. Thomson then gave the histories of his last eight consecutive cases of Graves's disease in private practice. In none of these cases had fright or any other emotion been an element of the clinical history. With two exceptions, the patients had been unusually free from causes of mental strain or depression. Exophthalmia and goitre had been wholly absent in one of these eight cases. Exophthalmia alone had been absent in five. Goitre had been absent in one, while in another it had been only slight and had occurred late in the disease. Both exophthalmia and goitre had been marked in only one case. In all the cases there had been pronounced tachycardia and muscular tremor. Emaciation had been marked in five and moderate in three. In four imperfect inspiratory power had been noticed.

The rapid heart action and the muscular tremor were the first symptoms to develop in this disease and the last to disappear, and together they constituted the most invariable elements of the disease. Our attention, therefore, should be particularly directed to them as the most related to its pathology and the most important practically, as the earlier the recognition of the disease the better for the patient. As to its pathology, a paralytic lesion involving the common nucleus of the glosso-pharyngeal, vagus, and spinal accessory nerves, and extending to the neighboring vaso-motor center in the medulla, would account for the whole group of symptoms that made up the picture of Graves's disease. Simple irritation of the lower branches of the glosso-pharyngeal and the superior laryngeal nerves was sometimes accompanied by general muscular tremor. Such a bulbar lesion would also explain the tachycardia and the universal relaxation and throbbing of the systemic arteries. It would also explain the interference with the inspiratory expansion. Such a lesion would not, however, account for the exophthalmia or the goitre, and when we turned to pathological anatomy we had no constant evidence of any textural lesion in the medulla, either of the above-mentioned centers or of other parts. No characteristic anatomical change had yet been discovered that could be causally associated with the genesis of Graves's disease, and we must look elsewhere for the origin of the malady. Here we might be aided by clinical experience. Persistent diarrhoea was a common symptom in Graves's disease. In the cases referred to, astringents and other drugs had had very little effect in checking the diarrhoea, while a change of diet had at once brought about an improvement in all the symptoms. Since 1880 the author had mainly relied on dietetic treatment in Graves's disease, with such favorable results that he now had little doubt that a specific disorder of intestinal (in distinction from gastric) digestion was the primary factor in the genesis of this affection. While a structural lesion in the medulla which would account for the phenomena of Graves's disease was almost inconceivable without its sooner or later involving all the vital functions of that seat of life, yet particular functional derangements produced by toxic agents of intestinal origin were just what might be expected, for nothing was more characteristic than the narrowly selective operation of functional nervous poisons, which might go on for years, as in the case of opium, affecting certain functions without producing either progressive changes in them or extension to other functions. One fact in Graves's disease that pointed much more distinctly to a digestive disorder than to a structural nervous lesion was that it occurred in women about ten times as often as in men. That the digestive apparatus in women was subject to special disorders was notorious. The author had not yet seen a severe case of Graves's disease in

which diarrhoea had not, sooner or later, been a pronounced symptom. As regarded the diet in these cases the amount of meat taken should be restricted, and milk—preferably in the form of matzoon—should be substituted. Medicinally, the author employed the intestinal antiseptic remedies, with tincture of strophanthus as a vaso-motor tonic.

Dr. E. C. SEGGIN said that, while there were undoubtedly cases of Graves's disease in which one or two of the three prominent symptoms—the exophthalmia, the goitre, and the tachycardia—were absent, he was inclined to believe that the author of the paper had rather exaggerated the number of cases in which the principal symptoms were those relating to the circulation. Unquestionably, we saw cases in which the only gross symptoms were the rapid heart action and the tremor, but these were comparatively rare. On the other hand, there were cases which presented these symptoms to which he should hesitate very much to give the name Graves's disease. It had appeared to him that in many cases of disease of the heart with dilatation or tachycardia there was apt to be associated with it a muscular tremor and considerable nervousness. In arriving at a diagnosis of Graves's disease, there were other symptoms to assist us to which Dr. Thomson had not referred. One was the character of the pulse. The mere fact of the pulse being rapid was not in itself characteristic of Basedow's disease; it should possess a quality of tension and smallness which to the experienced finger was of value in making the diagnosis. Then, again, the temperature of these patients was invariably raised by from half a degree to a degree F. in the axilla. In making a diagnosis of Graves's disease without the exophthalmia or the goitre, the speaker said he should wish to find, besides the tachycardia, the peculiar character of the pulse and the slight elevation of temperature. As to the pathology of the disease, every theory of the location of a lesion in the central nervous system had failed to satisfy him. As to locating the general cause of the disease in the intestinal tract, as the author had ingeniously done, no positive conclusions could be drawn, for the reason that the diarrhoea was by no means a frequent symptom in Graves's disease. He had observed it in only a few cases. Furthermore, it did not resemble a fermentative diarrhoea; it was of a paralytic nature, with large, liquid, frequent evacuations. In conclusion, Dr. Seguin referred to the value of aconitine in treating the disease.

Dr. B. SAUCHS agreed with Dr. Seguin as regarded the symptoms of the disease. He should hesitate to make a diagnosis of Graves's disease in a case in which both the exophthalmia and the goitre were wanting. What we did find with extreme frequency was that one of these two cardinal symptoms only was present, together with the characteristic arterial disturbance. Another symptom of the disease to which attention had lately been called was that the upper eyelid did not follow the motion of the pupil downward. This did not appear to be due to mechanical causes, but was an independent symptom. He had seen it present in a case where there was hardly any exophthalmia. Severe diarrhoea he had found rather rarely associated with other symptoms of Graves's disease. A diarrhoea due to the condition of the large intestine had been present in some cases, and in these he had been struck by the peculiar fact that it had not appeared to be exhausting to the patient. In regard to the theory put forth by Dr. Thomson, it must be remembered that, while putrefactive changes in the intestines were very common, exophthalmic goitre was a rare disease. Dr. Sauchs had found the "rest treatment" extremely beneficial in treating this affection, the heart's action becoming better and the goitre diminishing in size. In addition to rest, he put the patients on a light diet, principally milk and eggs.

Dr. GEORGE W. JACOBY said that in certain cases, where

only one of the cardinal symptoms was present, it is often a difficult matter to draw the line between Graves's disease and some other form of neurosis. In undeveloped cases of Graves's disease the "rest treatment" was particularly beneficial. As regarded the ocular symptom, the failure of the upper lid to follow the pupil downward, the patient had perfect control over the voluntary closure, but the reflex blinking of the lid was almost entirely lost. There might be loss of sensation of the cornea associated with it.

Dr. MARY PUTNAM JACOBI said that most authors referred to depressing emotions as a cause of Graves's disease. She mentioned three cases that had come under her observation in which such an antecedent cause had been extremely obvious. One of these, a very severe case, was that of a woman, aged twenty-two years, whose marriage engagement had been broken by the sudden death of her fiancé. She had rapidly been affected with the three typical symptoms of Graves's disease, with intense anorexia and diarrhoea. She had remained in a state of great prostration for six months, but subsequently had recovered and married. Following her second pregnancy, her symptoms reappeared. She was living at that time almost entirely on champagne, which seemed to intensify the symptoms greatly. The diarrhoea did not appear to add to her prostration. She was put entirely on the use of a meat diet, and the pulse rapidly fell from 150 to 90 a minute, and she regained her strength. In another case, occurring in a woman aged forty-three years, the symptoms had appeared after prolonged family troubles. The third case referred to had also been in a woman, a servant, who had been attacked with the symptoms after prolonged nursing of her mistress, to whom she had been much attached.

Dr. JOSEPH COLLINS said that if we could ascribe a toxic origin to exophthalmic goitre, as suggested by Dr. Thomson, the prognosis of the affection would not be so serious as it was. The speaker referred to certain experiments he had made on the thyroid in animals. Complete extirpation of the gland was almost invariably followed by death. This would controvert the idea that its function was a metabolic rather than a secretory one.

Dr. A. D. ROCKWELL had been interested in Dr. Thomson's statement that only one or two of the cardinal symptoms had been present in the cases narrated. As far as the speaker's observation went, the three typical symptoms were usually present. He referred to the value of digitalis in cases where there was weakness of the myocardium. He had found the drug very serviceable in combination with iron, zinc, and ergot. He also referred to the value of electricity; in order to do any good the current must be sufficiently powerful. In reply to a question, Dr. Rockwell said that the diminished resistance to the electrical current in these patients was probably owing to the perspiration and to the better conduction due to the rapid circulation.

The PRESIDENT did not think that any explanation thus far given would cover all the cases of this disease, and it was doubtful if there ever would be found a single explanation for any functional nervous disease. Different cases undoubtedly had a different aetiology. In two cases of Graves's disease that had recently come under his observation a sudden fright had been too immediate to be anything but causative. One of the patients, a woman, had seen her baby fall from a second-story window. She had immediately been seized with palpitation, and within two weeks the exophthalmia and the goitre had developed. She had presented a very interesting symptom that had been referred to by Charcot—a sudden giving out of the limbs—astasia. After such a collapse she was perfectly able to rise and walk away. In another case the symptoms had suddenly developed in a patient after she had narrowly escaped

being run over by a street-car. The president would follow Dr. Thomson's suggestions as to diet in these cases. Strophantus he had found very valuable. Electricity had proved disappointing in his hands as a remedial agent in Graves's disease.

Dr. THOMSON said that in his paper he had not intended to go over the entire symptomatology of Basedow's disease. Such occasional symptoms as the loss of the hair, pigmentation of the skin, etc., he had not referred to at all. Neither had he meant to imply that fright and depressing emotions were not often the occasion for the first development of the symptoms. We must try to separate occasions from true causes. The tremor of Graves's disease was characteristic. It was entirely different from the tremor of any cardiac affection he had ever met with. He had not maintained in his paper that there was any lesion in the medulla to account for these symptoms; he had only meant to show that, as no such lesion had been demonstrated, the fact lent strong weight to the toxic theory. These poisonous ptomaines might act, by selection, on certain parts of the nervous system. The relapsing nature of Graves's disease was against the idea that it depended on a structural lesion.

In reply to Dr. Seguin, Dr. Thomson said that in those cases where there was a high-tension pulse it was associated with albuminuria. In Graves's disease there was a dilatation of the arteries throughout the body, and dilated arteries and a high-tension pulse did not go together. As regarded the temperature, there was a slight elevation, such as was found in any serious neurosis, but it bore no proportion to the rapid heart action, and the affection might be regarded as essentially a non-febrile disease.

## Book Notices.

*A Text-book of Practical Therapeutics*, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., B.Sc. Third Edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1892. Pp. 698.

THAT this book has reached its third edition within two years is a sufficient guarantee of its excellence and of its popularity. We know of no text-book of therapeutics that is so concise, simple, and practical in its statements as this is, and it represents a radical, and yet valuable, departure from all previous works of this description.

The first part of the book is devoted to general therapeutic considerations, the second to drugs, the third to remedial measures other than drugs, also foods for the sick, and the fourth to diseases and indices.

The drugs are arranged in alphabetical order, so that reference to any particular substance is easy. The account given of each drug is clear and concise and sufficiently full, although we note occasionally the absence of some more or less important point, as, for instance, in the article upon Warburg's tincture, where no mention is made of the employment of the capsules instead of the tincture, although it is well known that these capsules, which consist of the evaporated tincture, have almost entirely superseded the tincture itself. In this third edition most of the more recent drugs—such as salophen, diuretin, euophen, piperazine, and dermatol—are treated of.

In part three we find interesting accounts of the applications of heat and cold, of the use of antiseptics, of disinfection, of counter-irritation, and the like, together with a short article on the rest cure.

In part four we find the most original feature of the book, which consists of short and pithy essays upon the treatment of all the well-known diseases, the arrangement, like that of the drugs, being alphabetical.

The indices are numerous and full, and form a valuable feature of the book.

*The Coal-tar Colors, with Especial Reference to their Injurious Qualities and the Restriction of their Use.* A Sanitary and Medico-legal Investigation. By THEODOR WEYL. With a Preface by Professor Sell. Translated, with permission of the Author, by HENRY LEFFMANN, M.D., Ph.D., Philadelphia. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xii-17 to 154. [Price, \$1.50.]

THE numerous uses for the coal-tar colors in dyeing food stuffs, wearing apparel, and other articles makes this translation of Dr. Weyl's monograph a timely publication. A brief synopsis is given of the mode of preparation of these colors, their classification in groups based on the chemical constitution is tabulated, and there are brief references to their uses, with particular reference to dyeing, mordanting, and printing.

Attention is directed to the fact that the poisonous qualities that were formerly ascribed to certain of these colors were due to arsenical and mercurial impurities, the statistical evidence showing that the workmen in aniline-color factories suffer to the extent of 63 per cent. only as a consequence of their occupation. The poisonous colors are picric acid, Martins' yellow, safranin, methylene blue, and dinitrocresol. The laws of Germany, England, France, Italy, and Austria-Hungary concerning the use of colors in the preparation of food are given. Believing that such legislation should only have been based upon more comprehensive information, Dr. Weyl began his investigations of as many of these dyes as possible. The researches with the nitro-colors showed that only the sulphonated colors, naphthol yellow and brilliant yellow, were harmless and applicable to the coloring of food and drink. None of the disazo colors were found to be poisonous, although naphthol black had an injurious effect when administered subcutaneously.

Weyl states that the urine from animals fed or treated subcutaneously with the azo-colors was generally colored, containing the unchanged color only when considerable quantities of the material had been administered. A portion of the dye, especially if it was insoluble, was found in the feces.

We agree with Professor Sell that the author has made a valuable contribution toward determining the physiological relation of the colors that are applicable to foods. The translator's work is satisfactorily performed.

*Syphilis and the Nervous System:* Being a Revised Reprint of the Lettomanian Lectures for 1890, delivered before the Medical Society of London. By W. R. GOWERS, M.D., F.R.C.P., F.R.S., Consulting Physician to University College Hospital. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. viii-9 to 131. [Price, \$1.]

THE reputation of the author of this little volume is sufficient warrant for the publication of a revision of his Lettomanian lectures of some three years ago. While these were published in some medical journals at that time, reference to the journals is not always convenient or possible, and the medical profession will undoubtedly welcome the handy shape in which they are now presented for consideration.

He describes the classification and character of tissue formation caused by syphilis, and calls attention to the fact that because there is the history of a former syphilitic lesion we are not justified in concluding that a disease of the nervous system is

due to syphilis. He believes that Strümpell's law "that the isolated impairment of nerve structures that have a certain function, when acute, indicates a toxic influence, when chronic, a degenerative process," must be remembered in making a diagnosis of syphilis of the nervous system, and he calls attention to the fact that there are no symptoms or combinations of symptoms produced by syphilis that are not also produced by other causes. He does not think there is real evidence that the disease ever is or ever has been cured, the word disease being used to designate that which causes the various manifestations of syphilis. We do not think that current opinion sustains this position, or that writers on syphilis admit the incurability of that disease. We think also that Dr. Gowers is in error in holding that long-continued treatment with small doses of mercury is a great and dangerous mistake, and we can not admit that the fact that this tenet is becoming prevalent in Germany commends it. Withal the book is interesting and will be suggestive to the neurologist and to the syphilologist.

*A Manual of Clinical Ophthalmology.* By HOWARD F. HANSELL, M.D., Lecturer on Ophthalmology in the Jefferson Medical College, and JAMES H. BELL, M.D., lately Demonstrator of Anatomy in Jefferson Medical College. With One Hundred and Twenty Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xiv-9 to 231. [Price, \$1.75.]

THIS little work shows evidence of considerable labor on the part of the authors, but it presents the usual faults of too great condensation. Students of ophthalmology need a larger and more complete work if they are to understand the subject, and the practitioner who wishes a book of reference will hardly be satisfied with the amount of information given here. Supplemented by oral and clinical instruction on the part of a teacher, it is doubtless useful, as it furnishes the outline of study.

*A Handbook of the Diseases of the Eye and their Treatment.* By HENRY B. SWANZY, A.M., M.B., F.R.C.S.I., Surgeon to the National Eye and Ear Infirmary, Dublin. Fourth Edition. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xv-518. [Price, \$3.]

MR. SWANZY'S text-book is so well known in this country that an extensive review of it is unnecessary. It has been revised throughout and considerably enlarged, and some new illustrations have been added. It seems strange that Mr. Swanzy still adheres to his erroneous definition of nyctalopia. He defines it "night blindness," although the derivation of the word, as well as almost universal custom, shows it to mean "seeing by night" or "day blindness," a condition of hyperæsthesia of the retina sometimes met with.

#### BOOKS, ETC., RECEIVED.

*Cheyne-Stokes Respiration.* By George Alexander Gibson, M.D., D.Sc., etc., Assistant Physician to the Royal Infirmary of Edinburgh. Edinburgh: Oliver & Boyd, 1892. Pp. 133. [Price, 5s.]

*Étude clinique de la cardio-sclérose (cardiopathies artérielles, artério-sclérose du cœur).* Par Henri Huchard, Président d'honneur de la Société médico-chirurgicale de Paris, etc. Paris: Félix Alcan, 1893. Pp. 139.

*The Diseases of the Nervous System.* A Text-book for Physicians and Students. By Dr. Ludwig Hirt, Professor at the University of Breslau. Translated, with Permission of the Author, by August Hoch, M.D., assisted by Frank R. Smith, A.M. (Cantab.), M.D., Assistant Physicians to the Johns Hopkins Hospital. With an Introduction by William Osler, M.D.,



F. R. C. P., Professor of Medicine in the Johns Hopkins University, etc. With 178 Illustrations. New York: D. Appleton and Company, 1893. Pp. xv-683. [Price, \$5.00.]

Traité de médecine. Publiées sous la direction de MM. Charcot, Professeur de clinique des maladies nerveuses à la Faculté de médecine de Paris; Bouchard, Professeur de pathologie générale à la Faculté de médecine de Paris; et Brissaud, Professeur agrégé à la Faculté de médecine de Paris. Par MM. Babinski, Ballet, Brault, Chantemesse, Charrin, Chauvigné, Courtois-Suffit, Gilbert, Guinon, Le Gendre, Marfan, Marie, Mathieu, Netter, Öttinger, André Petit, Richardière, Roger, Ruanlt, Thibierge, Thoinot, Fernand Vidal. Tome IV. Par MM. Ruanlt, Brissaud, Le Gendre, Marfan, Netter. Avec figures en noir et en couleurs dans le texte. Paris: G. Masson, 1893. Pp. 1112.

Proceedings of the Philadelphia County Medical Society. Volume XIII. Session of 1892. Lewis H. Adler, Jr., M. D., Editor.

Transactions of the American Orthopaedic Association. Sixth Session, held at New York City, September 20, 21, and 22, 1892. Volume V.

The Comparative Physiology of Respiration. Address by Simon Henry Gage, Vice-president Section F, before the Section of Biology, American Association for the Advancement of Science, at the Rochester Meeting, August, 1892. [Reprinted from the *Proceedings of the American Association for the Advancement of Science.*]

Intestinal Antisepsis in Enteric Fever by Means of Subiodide of Bismuth and Salol. By J. D. Farrar, M. D., of Baltimore. [Reprinted from the *Maryland Medical Journal.*]

The Relation of Rheumatism and Chorea. By Floyd M. Crandall, M. D., New York. [Reprinted from the *Archives of Pediatrics.*]

Methods of Decalcification in which the Structural Elements are preserved. An Aqueous Solution of Hematoxylin which does not readily Deteriorate. By Simon Henry Gage. [Reprinted from the *Proceedings of the American Microscopical Society.*]

The St. Louis Medical College. An Historical Address. By G. Bunigarten, M. D. (Delivered at the Semi-centennial Celebration of the College, October 18, 1892.)

An Analysis of Seventy-two Cases of Ununited Fracture occurring in the Long Bones of Children. By D'Arcy Power, M. A., M. B., etc. [Reprinted from the *Medico-chirurgical Transactions.*]

Nephrotomy for the Relief of Sudden Total Suppression of Urine occurring Some Time after Nephrectomy. By Willy Meyer, M. D., New York. [Reprinted from the *Annals of Surgery.*]

Remarks on the Histology of Xeroderma Pigmentosum. By S. Pollitzer, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Prickly Heat, Lichen Tropicus, Miliaria Papulosa, M. Rubra, etc. By S. Pollitzer, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

The Treatment of Hernia. By Alexander Dallas, M. D., New York. (Read before the Medical Society of the State of New York.)

Gastrostomy in Carcinoma of the Cardiac Orifice. By Emory Lanphear, M. D., of Kansas City, Mo. [Reprinted from the *Medical News.*]

Asheville, N. C., and its Advantages as a Climatic Resort for Pulmonary Diseases. By J. W. Gleitsmann, M. D., New York. [Reprinted from the *Journal of Balneology.*]

Blood in the Urine—How to discover its Source and what to do for it. By L. Bolton Bangs, M. D., New York. [Reprinted from the *Medical Record.*]

Acromegaly. By Joseph Collins, M. D., New York. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Some of the Effects of "Withdrawal." By L. Bolton Bangs, M. D. [Reprinted from the *Southern Clinician.*]

The Influence of the Morbid Conditions of the Uterine Adnexa upon Reflex Phenomena. By Charles P. Strong, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

Observations on the General Pathology of Cancer, especially of the Breast. By W. Roger Williams, F. R. C. S. Eng. [Reprinted from the *Medical Chronicle.*]

Notes on Fibrin, Oxhemoglobin Crystals, and the Colloidion Method. By Simon Henry Gage, Ithaca, N. Y. [Reprinted from the *Proceedings of the American Society of Microscopists.*]

Report of the Adjutant-General of the State of Michigan, for the Years 1891-1892.

Transactions of the American Ophthalmological Society. Twenty-eighth Annual Meeting, New London, Conn., 1892.

The Year-book of Treatment for 1893. A Critical Review for Practitioners of Medicine and Surgery. By Various Contributors. Philadelphia: Lea Brothers & Co., 1893. Pp. viii 496.

A Case of Bilateral Recurrent Inflammation of Tenon's Capsule in Connection with Profound Mercurial Poisoning. By Charles J. Kipp, M. D., Newark, N. J. [Reprinted from the *Transactions of the American Ophthalmological Society.*]

The Diagnostic Significance of the Venous and Arterial Murmurs in the Neck, based on Examinations of Fifteen Hundred Persons. By James K. Crook, M. D., New York. [Reprinted from the *American Journal of the Medical Sciences.*]

A Case of Acute Purulent Inflammation of the Middle Ear, with Double Optic Neuritis, but without Tenderness or Swelling of, or Spontaneous Pain in, the Mastoid Process, in which the Opening of the Mastoid Cells was followed by a Rapid Subsidence of the Optic Neuritis and Cure of the Ear Disease. By Charles J. Kipp, M. D., Newark, N. J. [Reprinted from the *Transactions of the American Otolological Society.*]

A Case of Hematosalpinx and Hematoma resembling Ectopic Gestation. By Edwin B. Cragin, M. D., New York. [Reprinted from the *New York Journal of Gynecology and Obstetrics.*]

Operative Experience with Ectopic Gestation. By Edwin B. Cragin, M. D., New York. [Reprinted from the *American Journal of Obstetrics.*]

Possibility of establishing Tolerance for the Tubercle Bacillus. By Samuel G. Dixon, M. D. [Reprinted from the *Medical News.*]

Involution Forms of the Tubercle Bacillus and the Effect of Subcutaneous Injections of Organic Substances on Inflammations. By Samuel G. Dixon, M. D. [Reprinted from the *Proceedings of the Academy of Natural Sciences of Philadelphia.*]

An Outline of the Technique of Abdominal and Pelvic Operations as performed in the Medico-chirurgical Hospital of Philadelphia. By William Easterly Ashton, M. D. [Reprinted from the *Medical Bulletin.*]

Consideraciones sobre dos casos de anemia por ankylostoma duodenale, observados en el Hospital Victor Manuel de Lima, por el Dr. J. B. Angoli. [De la *Crónica Médica de Lima.*]

Fifteenth Annual Report of the Presbyterian Eye, Ear, and Throat Charity Hospital, Baltimore, Md.

New York Eye and Ear Infirmary Reports. Volume I. Part I. January, 1893.

The Twenty-eighth Annual Report of the S. R. Smith Infirmary, for the Year ending May 31, 1892.

Fiftieth Annual Report of the Managers of the Utica State Hospital at Utica, for the Year ending September 30, 1892.

## Miscellany.

**Some of the Trophoneuroses associated with Abnormality of the Thyroid Gland.**—At a meeting of the Philadelphia County Medical Society held on February 5th Dr. Solomon Solis Cohen reported and exhibited photographs of two cases of acromegalia, in both of which there was apparent absence of the thyroid gland, and marked skeletal changes in addition to those in the face, hands, and spine. The patients were men—one twenty-five years of age, the other fifty one years old. In neither case was there any eye lesion. The case of the younger man had been previously reported to the College of Physicians. In the elder man headache, drowsiness, forgetfulness, thickness and scanning of speech, and excessive polyuria were present. The symptoms had been partially relieved by picrotoxin, the headache especially. This drug was a vaso-motor regulator and useful in many of the conditions to be discussed. It was necessary to say "apparent absence" of the thyroid gland, because only post mortem could absence or atrophy be unqualifiedly affirmed. Embryologically the pituitary body and thyroid gland were intimately related, and it appeared not improbable that the enlargement of the former and the consequent hemiopia and other cerebral symptoms noted in some cases of acromegalia might be due to an attempt by Nature to supply the absence of an important structure by compensatory hypertrophy of an allied structure.

A number of cases in which the thyroid gland could not be demonstrated and which presented some, but not all, of the changes found in typical cases of acromegalia were also related. In one such case the hands and ears presented marked local asphyxia (Raynaud's disease), while the pain and transient redness described in the feet upon exertion were suggestive of the condition described by Weir Mitchell under the name of erythromelalgia. In another case, in an aged man, there were cardiac lesions and muscular tremors, with wasting, as in progressive muscular atrophy.

Other cases observed by the speaker in which thyroid atrophy apparently existed were: one case of hypertrophic osteo-arthritis with emphysema and fibroid phthisis, in a man fifty years of age; one case of scleroderma with cardiac lesions, muscular tremors, and mental changes in a woman apparently quite aged, who insisted, however, that she was less than forty years old; and one case of unilateral spontaneous gangrene and ulceration of the toes and leg (Raynaud's disease), with bilateral spasmodic vascular phenomena in a woman over sixty years of age. In the latter case certain changes in the fingers and nails existed, which in one finger resembled those of acromegalia, in another finger those of rheumatoid arthritis, in another finger those of sclerodactyle, the nails of all the fingers being curved like those of the Hippocratic finger, as in pulmonary hypertrophic osteo-arthritis. That this latter condition of the nails and finger tips could be ascribed to interference with nutrition through the circulation was held to be shown by the occurrence in cases of cardiac disease without pulmonary or obvious nervous lesion of fingers indistinguishable, and of which pictures and tracings were exhibited.

Taking up conditions of trophic and vascular disturbance associated with enlargement of the thyroid gland, Dr. Cohen briefly alluded to exophthalmic goitre, myxœdema, and cretinism, laying stress upon the fact that as, on the one hand, in acromegalia there might be enlargement instead of apparent absence or atrophy of the thyroid gland, so, on the other hand, in myxœdema and cretinism, the goitre might be lacking, while experimental thyroidectomy, as well as the *cachexia strumipriva* that followed surgical extirpation of the gland, proved that the symptoms were due to a functional atrophy of the gland, whether or not there was hyperplasia of the non-essential anatomical elements. Stress was laid upon the varied vaso-motor disturbances in all these marked conditions.

In one case of Raynaud's disease, an affection which, so far as the vaso-motor phenomena are concerned, was almost an antithesis of Graves's disease, Dr. Cohen had observed in an anæmic girl, with occasional tachycardia, an intermittent enlargement of the thyroid, just as was observed in certain cases of exophthalmic goitre, and in certain ill-defined cases for which he had proposed the name of *vaso-motor ataxia*,

which latter could not be called exophthalmic goitre, but in some instances might readily develop into that condition. These latter cases, observed both in males and in females, but principally in the latter, and in hysterical subjects more often than in others, showed as an almost constant feature the intermittent presence of hæmocytes in the urine; sometimes, but rarely, transient or intermittent albuminuria as well. In some cases lithuria and oxaluria had been noted, especially in those of rheumatic, gouty, or diabetic families; still more rarely casts or cylindroids had been found. These observations were related with the occurrence of hæmoglobinuria in Raynaud's disease, and of hæmaturia and other hemorrhages, such as purpura, hæmoptysis, and hæmatemesis, all of which the speaker had personally witnessed, in Graves's disease; as well as with the occasional albuminuria of the latter, and the polyuria, albuminuria, and glycosuria of myxœdema and of acromegalia, and the morbid perspiration and localized œdemas and flushes of all these conditions, and of angio-neurotic œdema—in which latter condition he had also found hæmocytes in the urine during and after paroxysms affecting the throat in one woman and the arms in another. In some of his cases of vaso-motor ataxia, a condition which varied much in its severity, from but slight abnormality to such marked affections as those associated with the name of Graves and Raynaud, the author had observed hæmatemesis, with symptoms suggestive of gastric ulcer, anæmia, menstrual irregularities, migraine, transient localized œdema, transient local blushing, permanent dilatation of isolated groups of capillaries and venules, stigmata, local syncope, erythema nodosum, and urticaria; in one case there had been transient blindness. In two other cases, in which, however, no thyroid abnormality had been detected, there had been membranous enteritis. Subjective and objective coldness of the knees was marked in one case in which the thyroid was enlarged. In another case, the first observed by Dr. Cohen in a male, there had been great rapidity of the heart's action and intermittent goitre as well, so that the case might well have been called Graves's disease, and doubtless belonged positively in that category. Strictly circumscribed erythema and factitious urticaria could be readily produced in all these cases by writing upon the skin with a probe, or in some instances applying cold to the part. In a colored woman with exophthalmic goitre the effect was almost startling.

The connection of rheumatism with Graves's disease, and the heredity of both, was too frequent to be a mere coincidence. In certain cases of rheumatoid arthritis the thyroid gland was found to be enlarged, and tracings were shown of the fingers of an old man with rheumatoid arthritis and arthritic muscular atrophy, in which the parrot-beak pad and nail were shown in the terminal phalanx of the thumb, which was hyperextended, while the sharpened and atrophied terminal phalanges of other fingers resembled sclerodactyle, and were almost identical with the tracings from the case of Raynaud's disease. Allusion was made to the tetany of thyroidectomy and the tremors of exophthalmic goitre, some cases of myxœdema, the speaker's cases of scleroderma and of Raynaud's disease, and some of his cases of vaso-motor ataxia, as also to the occurrence of phenomena like those of Raynaud's disease in certain cases of scleroderma, the anæmia, and the extreme susceptibility to cold, which was a feature of all the conditions described. To complete the list of associations observed, and admitting that they might be coincidental, there were many reported in connection with the occasional occurrence of epilepsy in Graves's disease, two cases of the speaker's, in one of which *petit mal* had developed in an anæmic girl with enlarged thyroid and occasional tachycardia, and in the other, a male, with enlarged thyroid, tachycardia and flushed face accompanied the epileptic paroxysm. The not infrequent termination in phthisis of many of the conditions alluded to might have no other significance than impaired nutrition, but the recent observation of hæmoptysis occurring only during a paroxysm in one case of epilepsy without appreciable pulmonary lesion, and in one case of local asphyxia with but trifling signs in the chest and a few tubercle bacilli in the sputum, had suggested the thought that vascular disturbances in the lung might be the determining factor. Finally, attention was called to the success of various operations in treating myxœdema by implantation of a thyroid gland, by injections of thyroid extract, and by feeding with fresh thyroids. It was suggested that the same treatment might be of benefit in many of these varied conditions narrated.

The speaker desired to avoid premature assertion of causal relationship, and had therefore made use of the words "associated with," rather than "dependent upon" abnormality of the thyroid gland, in describing the trophic, neurotic, and neuro-vascular phenomena discussed; some of the complicated associations he had been unfortunate enough to meet with were doubtless purely fortuitous. The tendency of diagnosticians was naturally to discriminate among groups of phenomena presenting similarities, and thus to divide rather than unite. Nevertheless, the student of pathology, in its broad sense, must be on the alert for commonality of phenomena, and certainly the very variety of the nutritional disturbances associated with abnormalities of the thyroid gland indicated a profound relationship among them, dependent upon the important metabolic functions of the gland.

The researches of many observers, in particular Horsley, had demonstrated this metabolic importance, and that the secretions of the gland acted in the organism in some way. Dr. Cohen believed that they were in truth chemio-tactic or regulatory, and that individual constitution, heredity, environment, habits, and the like, determined the particular direction in which failure of their function would be manifested. Most certainly an intimate relation existed between the thyroid gland and the visceral nervous system, more especially the vaso-motor mechanism. Of course, under the conditions, it was difficult to separate primary from secondary phenomena—the mediate results of the train of action of a mechanism from the immediate results of the influences that had set the mechanism in action. The main purpose of the paper was to suggest more common observation clinically and at autopsies of the thyroid gland, so that sufficient data might be collected by a number of observers in order to determine what is accidental and what essential.

**The Pan-American Medical Congress.**—The following new by-laws have been adopted:

**LANGUAGES.**—*By-law IX:* Papers may be read in any language providing that authors of the same shall furnish the Secretary-General with an abstract not exceeding six hundred words in length, in either of the official languages (English, Spanish, French, or Portuguese), by not later than July 10, 1893, and providing, further, that a copy of each such paper shall be furnished in either of the official languages, at or before the time of the meeting, to the secretary of the section before which the same shall be read. Remarks upon papers may be made in any language providing that members making such remarks shall furnish a copy of the same, in either of the official languages, before the adjournment of the session.

**PUBLICATION.**—*By-law X:* All papers read, either in full or by title, shall be immediately submitted for publication in the *Transactions* (Special Regulation 3), but authors may retain copies and publish the same at their pleasure after the adjournment of the congress.

**CONSTITUENT ORGANIZATIONS.**—*By-law XI:* All medical, dental, and pharmaceutical organizations, the titles of which have been transmitted with approval to the committee on organization, or which may hereafter be transmitted with approval to the executive committee by any member of the international executive committee, each for his own country, shall be subject to election by the executive committee, approved by the president, as constituent bodies of the First Pan-American Medical Congress, and each organization thus constituted shall have the right to designate as delegates all of its members attending the congress, but no such organization shall meet at the time and place of meeting of the congress as a distinct body; providing that the secretary of each such constituent body shall furnish a list of officers and a statement of the number of members of his respective organization to the Secretary-General not later than sixty days before the meeting of the congress, and shall forward a list of delegates chosen to reach the Secretary-General before the opening of the congress.

**Section in Medical Pedagogics.**—The pedagogic section will devote its attention especially to the history of the development of medical education in America.

In the papers presented by leading teachers recent advances in methods of instruction will be considered.

The *art of teaching*, which is regarded as a study of great interest in other branches of learning, has received hitherto but little attention from the medical profession.

The Section in Medical Pedagogics will therefore be made a prominent feature of the congress, and it is hoped that those interested in medical education will co-operate in the work of this section by being present and by actively engaging in the discussion of subjects presented.

Any inquiries or communications may be made through the secretaries undersigned:

J. COLLINS WARREN, M. D., *Executive President*, Boston, Mass.

CHARLES L. SUMNER, M. D., *English-speaking Secretary*,

Boston, Mass.

WILLIAM F. HUTCHINSON, M. D., *Spanish-speaking Secretary*,

Providence, R. I.

*Section in Hygiene, Climatology, and Demography.*—Persons proposing to present papers before this section are requested to communicate with either of the undersigned *immediately*, that titles of subjects may be properly classified for the programme of the proceedings of the congress. The only limitation as to subject matter is that it shall have a sanitary, climatological, or statistical bearing. Members of the Section in State Medicine of the American Medical Association, of the American Public Health Association, of the American Climatological Association, of the American Academy of Medicine, and of State and Municipal Boards of Health are especially invited to contribute the results of their several experiences. The languages of the congress being Spanish, Portuguese, French, and English, papers may be presented in either, to be translated into the others, for which reason their text should be in the hands of the secretaries at the earliest possible date.

ALBERT L. GARDEN, M. D., *President*,

145 East Twenty-first Street, New York.

PEDRO JOSÉ SALICRÚ, M. D., *Secretary (Spanish)*,

129 East Seventeenth Street, New York City.

PETER H. BRYCE, M. D., *Secretary (English)*, Toronto, Canada.

The following named physicians have been appointed members of the advisory council: Dr. F. Mall, University of Chicago, Chicago; Dr. Charles F. Dolley, 3707 Woodland Avenue, Philadelphia; Dr. Edward K. Dunham, Carnegie Laboratory, New York; Dr. Elizabeth R. Bundy, Woman's Medical College, Philadelphia; Dr. W. M. Gray, Army Medical Museum, Washington; and Dr. H. C. Tinkham, University of Vermont, Burlington, Vt.

*The Section in Dermatology and Syphilography* has been organized as follows: Honorary presidents, Dr. Silva Aranjó, Riode Janeiro, U. S. of Brazil; Dr. L. Duncan Bulkley, New York; Dr. Juan C. Castillo, Lima, Peru; Dr. Louis A. Duhring, Philadelphia; Dr. Le Grand N. Denslow, St. Paul; Dr. Maximiliano Golan, Mexico, Mexico; Dr. James Nevins Hyde, Chicago; Dr. Prince A. Morrow, New York; Dr. R. B. Morison, Baltimore; Dr. D. W. Montgomery, San Francisco; Dr. A. Ravogli, Cincinnati; Dr. A. R. Robinson, New York; Dr. Antonio Rubio, Pinar del Rio, Cuba; Dr. M. Lucas Sierra, Santiago, Chile; Dr. R. W. Taylor, New York; Dr. A. Van Harlingen, Philadelphia; Dr. J. C. White, Boston; Dr. Edward Wigglesworth, Boston. Executive president, Dr. A. H. Ohmann-Dumesnil, No. 5 South Broadway, St. Louis. Secretaries, Dr. W. S. Fothell (English-speaking), 25 West Fifty-third Street, New York; Dr. John Forrest (Spanish-speaking), Charleston; Dr. Carlos Lloveras [Piedad 944], Buenos Aires, Argentine Republic; Dr. Viscarra Heredia, La Paz, Bolivia; Dr. W. S. Barnes [Lepor Hospital], Malacca, British Guiana; Dr. Joan P. Gabiza, Rio de Janeiro, U. S. of Brazil; Dr. J. E. Graham, Toronto, Canada; Dr. Enrique Robelin [Jesus Maria 91], Havana, Cuba; Dr. Daniel E. Coronado [Calle 13, núm. 120], Bogotá, Colombia; Dr. Daniel Nuñez, San José, Costa Rica; Dr. Angel Rivera Paz, Guatemala, Guatemala; Dr. H. G. McGrew, Honolulu, Hawaii; Dr. Strachan, Kingston, Jamaica; Dr. P. Numa Rat, Antigua, Leeward Islands; Dr. Francisco Bernaldez [Escuela de Medicina], Mexico, Mexico; Dr. Beran N. Rake, Port of Spain, Trinidad; Dr. Manuel Bonasso (Aracpe Esquina Colonia), Montevideo, Uruguay; Dr. Adolfo Prieto Picón, Merida, Venezuela. Advisory council, Dr. T. B. Keber, St. Louis; Dr. E. B. Browson, New York; Dr. Jos. Zeisler, Chicago; Dr. J. P. Knoche, Kansas City; Dr. W. T. Corlett, Cleveland; Dr. M. P. Vander Horck, Minneapolis; Dr. B. Merrill Ricketts, Cincinnati; Dr. H. W. Blanc, Sewanee, Tenn.; Dr. J. V. Shoemaker, Philadelphia; Dr. J. H. Bloom, Louisville; Dr. H. W. Stelwagon, Philadelphia; Dr. J. C. McGuire, Washington. Communications, notices of papers, etc.,



should be sent to the secretary, Dr. W. S. Gottheil, 25 West Fifty third Street, New York.

*The Section in General Medicine.*—The following announcement has been issued: "This unique assemblage promises to be one of the most important events that has occurred in the history of medicine in the Americas. Its success is assured by the large number of valuable papers already promised. The Section in General Medicine, which is one of the most important that have been created, bids fair to be one of the most successful in the entire congress, and already many valuable contributions are in process of preparation and will be read at the meeting in September. It is hoped, with the hearty co-operation of all physicians living not only in North but also in South and Central America, that the work in this section will be memorable; and each physician living on this continent is requested to join this most important section and to prepare a contribution to be read before that body. It is especially requested that those intending to join this section or to read papers should at once send their names, with titles of papers, to the secretary, Dr. Judson Daland, No. 319 South Eighteenth Street, Philadelphia, Pa., so that they may be noted on the calendar and given their appropriate places."

*The Section in Therapeutics.*—The president of the section, Dr. Hobart Amory Hare, of Philadelphia, writes as follows: "Will you kindly state in the columns of your esteemed journal that it is the earnest desire of the officers of the Section in Therapeutics in the Pan-American Medical Congress that both specialists and general practitioners should contribute articles to its proceedings?" Gentlemen who desire to read papers at this meeting, he adds, should notify him at once of their intention, and should send him by July 10th at the latest an abstract of their paper in order that it may be translated into the three official languages of the congress and announced in the programme. The importance of this section and the interesting papers which have already been promised give assurance of a very successful meeting.

**An International Semmelweis Memorial.**—The following circular has been issued in the name of an executive committee in Budapest, Hungary:

"The great service that Semmelweis has done for science, as founder of the doctrine of the origin and prevention of puerperal fever and the antiseptic treatment of child-bearing women, is now recognized by the medical profession in all parts of the world. The profession estimates at present not only the scientific activity (*v. Die Aetiology, der Hygiene und der Prophylaxis des Kindbettfiebers*, v. I. Ph. Semmelweis, 1861) of this talented investigator, but also the extent of the service which he has rendered to suffering humanity.

"When, in April, 1891, the mortal remains of Semmelweis, deceased 1865, were transported from Vienna to Budapest, his birthplace and the seat of his activity, the medical faculty of the Royal University of this town, in conjunction with the Budapest Royal Medical Society, intrusted the undersigned committee with the duty of initiating proposals as the best way of honoring the remembrance of Semmelweis in a durable manner.

"The consideration that the services of Semmelweis are not confined to the narrow sphere of a single town or country has induced the committee to propose, together with some pious tokens of appreciation of a local character, the erection of an international Semmelweis Memorial on a suitable site in Budapest, the capital of Hungary, to express in this way the importance of the blissful activity of this ever-memorable man. And, in order to give the whole scientific world, in the widest circles, the opportunity of participation in this work of recognition, international collections are to be initiated.

"As you will see, by the subjoined list of names, the executive committee has succeeded in securing a number of professional brethren of all countries, who as an international committee will co-operate in carrying out the projected memorial.

"We therefore beg to submit to you, as well as to the medical societies, the medical press, and all professional brethren, our request to support our design and to take an active part in this collection. We have, besides, the conviction that among your professional acquaintances there may be many grateful families who would gladly subscribe a sum, however modest, to honor the man whom they have to thank that

the young wife, the mother, is enabled to await her time of difficulty with calmness.

"We beg to have all subscriptions addressed to the treasurer of the Hungarian executive committee, Dr. Elischer, IV, Petöf-tér, Budapest, Hungary.

"The results of the collection will be periodically published, and the executive committee hopes to be in the position to submit a full report of its activity on the occasion of the International Congress for Hygiene and Demography, to be held in Budapest, 1894."

The committee is constituted as follows:

Abegg, Dr., Danzig; Ahlfeld, Fr., Marburg; Alin, E., Stockholm; Anderson, Mrs. G., London; Balandin, J., St. Petersburg; Bar, P., Paris; Barnes, R., London; Bigelow, H. R., Philadelphia; Billings, J. S., Washington; Black, J. W., London; Bossi, L. M., Genoa; Boxall, R., London; Börner, E., Graz; Braun, G., Vienna; Budin, P., Paris; Calderini, G., Parma; Champneys, F. H., London; Chrobak, R., Vienna; Clark, Sir Andrew, Bart., London; Cullingworth, C. J., London; Cushing, E. W., Boston; Czerny, V., Heidelberg; Dacarrete y Hernandez, M. A., Cadiz; Dohrn, R., Königsberg; Duka, T., London; Ehrendorfer, E., Innsbruck; Eustache, G., Lille; Fabbri, E. F., Modena; Fehling, H., Basel; Fraipont, J., Liège; Freund, W. A., Strassburg; Fritsch, H., Breslau; Frommel, R., Erlangen; Glover, J. G., London; Green, C. M., Boston; Gusserow, A., Berlin; Guzzoni degli Ancarani, Cagliari; Haflter, E., Frauenfeld; Halbertsma, T., Utrecht; Hegar, A., Freiburg i. B.; Hennig, C., Leipzig; Heinrichs, G., Helsingfors; Hergott, T. J., Nancy; Hirst, B. C., Philadelphia; Hofmeier, M., Würzburg; Howitz, F., Copenhagen; Inverardi, G., Padua; Jaggard, W. W., Chicago; Josephson, C. D., Stockholm; Kaltenbach, R., Halle; Kellogg, J. H., Battle Creek; Kehrner, F. A., Heidelberg; Kidd, G. H., Dublin; King, A. F. A., Washington; Krassnigg, A., Klagenfurt; Kufferath, E., Brussels; Küster, O., Dorpat; Lange, C., Copenhagen; Leopold, C. G., Dresden; Lindfors, A. O., Lund; Lister, Sir Joseph, Bart., London; Lobmayer, A., Zähring; Löhlein, H., Giessen; Madurowicz, M., Krakau; Marey, Henry O., Boston; Martin, A., Berlin; Mendez de Leon, Amsterdam; Meyer, L., Copenhagen; Moleschott, J., Rome; Neugebauer, Fr., Warsaw; Nordau, M., Paris; Olshausen, R., Berlin; Paget, Sir James, Bart., London; Pasteur, Paris; Pernice, H. K. A., Greifswald; Pinard, A., Paris; Phänomenoff, N., Kasan; Porro, E., Milan; Potter, W. W., Buffalo; Priestley, W. O., London; Prochowick, L., Hamburg; Rein, G., Kiev; Ribemont Dessaignes, A., Paris; Richardson, L. W., Cambridge; Ronetti, G., Pisa; Rosthorn, A., Prague; Routh, C. H. F., London; Runge, M., Göttingen; Salin, M., Stockholm; Sängner, M., Leipzig; Sängner, W. M. H., Groningen; Saxinger, Joh., Tübingen; Schautla, Fr., Vienna; Schoenberg, E., Christiania; Schultz, B., Jena; Schwing, K., Prague; Simpson, A. R., Edinburgh; Sinclair, A. D., Boston; Skene, A. J. C., Brooklyn; Slawiansky, K., St. Petersburg; Stadfeldt, A., Copenhagen; Stahl, C., Frankfurt a. M.; Stékoulis, C., Constantinople; Storer, M., Boston; Subbotic, V., Belgrade; Tarnier, S., Paris; Tilanus, W. J. K., Amsterdam; Treub, H., Leyden; Valenta, A., Laibach; Veit, G., Bonn; Wallace, A., London; Welpner, E., Trieste; Wells, Sir Spencer, Bart., London; Werth, R., Kiel; Winckel, F., Munich; Wolczynski, J., Czernowitz; Wyder, Th., Zürich; Zweifel, P., Leipzig.

Subscriptions can be forwarded by post-office order or check to the treasurer, Dr. J. Elischer, Budapest, Hungary, Petöf-tér, No. 1.

**The late Dr. Ceccarelli.**—Under the heading of The Physician in High Places the *Lancet* for March 4th prints the following:

"When, in February, 1878, Pope Pius IX. was succeeded by Leo XIII. amidst the complete change in the personnel of the Vatican there was one eminent functionary retained, and that was Dr. Alessandro Ceccarelli, body physician to the late Pontiff. Many were the reasons given by the outside world for this departure from usual custom in the constitution of the Papal Court. One was that Dr. Ceccarelli 'knew too much' to be safely relegated to a life of 'greater freedom and less responsibility.' From the close intimacy in which he stood to Pío Nono and also to the leading cardinals and plenipotentiaries accredited to the Holy See, he was necessarily the recipient of many secrets, of many political schemes, some abortive, some in process of development; of many intrigues such as permeate the complex life of the Curia and of which not a whisper is allowed to reach profane circles. Little did the

authors or propagators of this surmise know Dr. Ceccarelli, who needed no subscription to the 'Oath of Hippocrates' to observe the 'fidele salute' imposed on all physicians—doubly on one enjoying opportunities such as his of looking behind the politico-religious veil of the Vatican. The gossip of society was wide of the mark in its accounting for Leo XIII's retention of his predecessor's body physician, and, as usual, in its anxiety to appear 'knowing,' missed the plain facts obvious to all. In the first place, Dr. Ceccarelli was a surgeon as well as physician *hors ligne*. The French Ambassador, to take one instance out of many, suffered from a sublingual cancerous growth, and this was extirpated so skillfully by Dr. Ceccarelli that on dining with his Excellency shortly afterward he found under his serviette the brevet and the insignia of the Legion of Honor. Even outside the Apostolic entourage his professional skill was in request, and his refusal of General La Marmora's offer of the post of 'Generale Medico' in the Italian army was as great a disappointment to the Quirinal as it was a gratification to the Vatican. With so much to recommend him as an able and devoted consultant, he had other qualities of the 'physician in high places' only second in importance for that rôle. He had admirable self-possession and social tact—he was indeed scarcely less of a diplomatist than the ambassadors and ministers accredited to foreign courts. That a man cognizant of facts so momentous should yet have the 'divine gift of silence' in such perfection was a special qualification for the post of pontifical consultant not likely to escape the notice of Leo XIII. Not that his reticence was an absolute or an indiscriminating one. Much that has since become history he was able to confirm or to supplement; much that is yet valuable for the historical or political student to know he has embodied in 'documenti preziosissimi per la storia d'Italia,' especially for the dramatic events that preceded and followed September 20, 1870—documents that he would never have committed to paper had he not meant them to see the light. These, when the time comes for publishing them, will furnish lively and instructive reading, and they will also attest their author's capacity of distinguishing between the facts which are common property and those which are 'sacro digna silentio.' Among the latter may safely be included the memorable encounter between the Empress Eugénie and Pius IX, when both exalted personages, whose fates were so closely and so disastrously linked, succumbed to the shock of long pent-up emotion, the Empress admitting that it was 'my war,' as she termed the fatal campaign of 1870, that made her octogenarian host 'a prisoner in the Vatican,' and the invalid Holy Father vainly striving at much personal risk to comfort the prostrate suppliant. There are situations in life, whether high or humble, from which the outer world must forever remain aloof, and of these the above indicated was one among many on which Dr. Ceccarelli's lips were religiously sealed. This innate sense of professional honor was but in keeping with the large benevolence he lavished on the sick and helpless poor—benevolence, as described in our obituary notice of him in the *Lancet* of last week, which knew no distinction of party or creed, but expended itself on Garibaldian insurgent no less than on Papal zouave or assumed the congenial form of hospital construction and the multiplication of clinical wards. Even, we are told, in the delirium of his last illness his thoughts kept running on the 'Congregazione di Carità and his uncompleted projects for the extension of its usefulness. Lives like his are exemplary for their proof that association with the exalted of the earth implies no necessary estrangement from the interests of the lowly and the less favored, and that active, unobtrusive benevolence has its share as well as diplomatic reserve and scientific achievement in determining the character and career of 'the physician in high places.'"

**Medico-legal Points.**—In a case recently tried in the Supreme Court of the State of Illinois the following decision was given:

**Siebert vs. The People.** Supreme Court of Illinois. (Opinion filed October 31, 1892.)

3. **Evidence: Competency of Expert to give his Opinion.**—A practicing physician who is shown to be a graduate of a regular medical college, and to have practiced his profession for many years, is competent to give his opinion upon a hypothetical question setting forth the symptoms of a deceased person, whether the death was from the effects of arsenical poison, although he may not be shown to have had any case

of such poisoning. A medical witness in giving his opinion as an expert, is not confined to opinions derived from his own observation and experience, but may give an opinion based upon information derived from medical books.

11. **Criminal Law: Instruction as to Reasonable Doubt.**—On the trial of a criminal case, it is not error to instruct the jury that it is not necessary to prove each link in the chain of circumstances relied on, or every fact in the case, beyond a reasonable doubt, but it is sufficient if, taking the evidence as a whole, they are satisfied beyond a reasonable doubt of the defendant's guilt.

15. **Evidence: Offer of Vial and Testificates Contents.**—When a vial and box containing poison is offered in evidence and admitted, the only object of offering them in evidence being to get the contents to the jury, an instruction to the jury not to consider the contents is properly refused.—*Journal of the Am. Med. Assoc.*

**To Contributors and Correspondents.**—The attention of all who propose forwarding us with communications is respectfully called to the following:

1. **Consent of articles attached for publication under the head of "original contributions,"** are respectfully informed that, in accepting such articles, our managers do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of; we cannot engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to anyone as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank paper for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

## Original Communications.

### THE MENTAL SYMPTOMS OF FATIGUE.\*

By EDWARD COWLES, M. D.,

MEDICAL SUPERINTENDENT, MCLEAN HOSPITAL, SOMERVILLE, MASS.

THE subject of mental symptoms carries with it the suggestion of something vague and difficult of apprehension. The study of mental disorders is forbidding to the general physician, who feels that he has neither time nor patience for it. The present purpose is to contribute something to a better understanding and an easier appreciation of the mental symptoms of fatigue, which will be considered under the following heads: 1. The nature of mental symptoms. 2. The physical conditions of fatigue. 3. Some elementary facts of the nervous and mental mechanism. 4. The alterations of mental functions that are significant as symptoms.

1. *The Nature of Mental Symptoms.*—It has been the fashion to regard this branch of neurology as being slow in its progress, having no coherent principles, resting upon an indeterminate basis, and as being unscientific in its classification and therapeutics. Krafft-Ebing admits that the anatomy of the nervous system has so far been incomplete and unsatisfactory in not enabling us to reason from structure to function, as has been done in the relatively simple structure of the vegetative organs, and that pathology has been disappointing in failing to explain the most marked disturbances of function. But he points to the fact that psychiatry is one of the youngest of our special sciences. He says it seems almost exclusively dependent on itself, and is limited to the direct observation of morbid mental phenomena; also that it is from the empirical valuation of these phenomena that we are obliged to draw conclusions as to the kind and degree of the functional disturbance in the organ of mind. His conclusion is that great progress has been made in the raising of psychiatry to the rank of a natural science with methods of empirical research. Its direct advancement can be accomplished only by tireless observation and report of clinical phenomena, and thus fixing the facts of the mental life. While mental disease is always brain disease, the course of the processes in mental disorders is discovered through observation, as in any other disease.

The hope of gaining a clearer appreciation of mental symptoms lies in the fact that we may observe so much more directly the manifestations of mind, and consequently of nervous function, than we can those of any other function of the nervous system. We may study, by the aid of anatomy, physiology, pathology, and physics, an involuntary mechanism like the heart, or the action of the muscular system as a voluntary mechanism. In the action of the peripheral apparatus we note the expression of the setting free of central nervous energy, and can trace the conducting path of the motive energy back to motor cen-

ters. But we can get no further than to speak of "innervation" and "inhibition," with entire ignorance of the way in which nervous substance is stimulated, and augments or controls that which stimulates it into activity. We are conscious that the mode of expression of the active mind through the peripheral instruments is indirect.

All this is true also of the complex organ of speech, when examined as an organ and as one of the minor mechanisms of whose anatomy and pathology we may make the most scientific study, as we need to do for a correct interpretation of any change from normal action. But through this organ we hear, in the articulate sounds with varied tone, pitch, and inflection, and in the words which this instrument produces, the direct expression of a function by which brain cells are able to convey to our understanding the largeness and fineness of meaning that is comprehended in the "infinite variety" of the human mind. This takes us into a field of phenomena that our kindred sciences fail to reach. Instead of lamenting that they do not aid us, it is perhaps more true to say that we do not need their aid in the interpretation of these manifestations, which, by a superior mode of expression, convey finer variations of meaning, and make revelations of earlier and slighter departures from normal action, than we can get from any other function of the human organism. Moreover, it is given us to make these discriminations by the natural law of mind, without any need of laborious study and interpretation of the working of an intervening instrument. We hear the expression of thought and feeling in sounds that we come to know, and we need not stop to note the mechanism of their utterance. From the moment when we are thrust into this noisy world, the articulate sounds of the human voice begin to be familiar to us. Every man makes his way in the world largely by his success in measuring the minds of his fellow-men. We have by nature a most intimate common knowledge of variations in mental function; of no science have we a more practical every-day knowledge than of psychology. It is true that we have to discover a way to reduce the data of this knowledge to orderly form, and to recognize the import of commonly observed mental manifestations by observing their correspondence with recognized bodily conditions. This must constitute a true science of the health and disease of a function which has its own peculiar character and physiological laws.

The nature of mental symptoms, or manifestations of departures from normal function, being thus understood, we should approach their study with minds free from prejudice, prepared to observe and fix the facts of each kind of manifestation, and array them in the order of their occurrence and relations with each other. The question now comes, Can we set up a plain and intelligible conception of the normal mental mechanism that will serve as our standard in which to note and localize, as it were, the departures from normal action? We must begin in an elementary way, and deal first with the slighter variations from conditions of health in the mechanism and its fullness of power to do what it can do. In the brief time allotted here the attempt will be made to do little more than to point out a method

\* Read before the New York State Medical Association, November 16, 1892.



of observation and study, on the basis of some of the primary facts, of the mental and nervous mechanism.

2. *The Physical Conditions of Fatigue.*—The proposition may be laid down to start with, as a working formula, that the organ of the mind is an apparatus for the storage and discharge of nervous energy, and that all mental symptoms indicate a failure of the mental elements to function with normal co-ordination, because of modification of the power to set free nervous energy, due to lack of the discharging force, or the obstruction of it, or to lessened power of control, or as due to excess of stimulation and discharge, which means also relative weakness of inhibitory control. All of these conditions of nervous action may exist together or side by side, and often do, not only in the most manifest of mental diseases, but in the lesser degrees of nervous fatigue. In fact, the key to the understanding of these graver conditions seems to be in the appreciation of the slighter degrees of nervous exhaustion always to be observed in normal fatigue. The condition of the central organ may be directly observed through the mental symptoms, which quickly reflect the variations in nervous force and activity. The correct understanding of these symptoms is essential to the best treatment of nervous exhaustion in all its forms. And this is the soil in which the more serious nervous diseases take root and grow.

The bodily conditions of fatigue should first be considered as far as we can know them, and may be studied in their two forms or degrees: 1, *normal fatigue*, or the condition of wholesome tire from daily physiological use; and 2, *pathological fatigue*, or the condition of persistent "impoverishment of nervous tissue in excess of repair," according to Beard, which constitutes nervous exhaustion or neurasthenia. The mental symptoms are to be studied in their close and direct correspondence with these conditions of fatigue.

The effects of fatigue are produced by sufficiently continued exercise in the physiological use of any function, muscular or nervous. The sense of fatigue is complex and may have a central or peripheral source or both together. In muscular tissue the condition of fatigue depends upon the physiological fact that muscular contraction is in some way or other the result of a clinical change whereby the latent energy is set free and expended in the mechanical work, with also the setting free of heat. The resultant chemical products are toxic and obstructive of muscular function unless they are duly washed away in the blood current, and time must be given in rest and sleep for this process, as well as for nutrition and repair. These toxic products being variously irritant or benumbing, doubtless thus affect the sensory apparatus through which fatigue is felt. It is evident from this that the condition of muscular fatigue has always a dual character—there is direct expenditure of energy requiring repair, and a toxic element that may be obstructive of function, both that of discharging energy and of taking up nutrition.

In nervous substance, the nature of nerve force being unknown, the effects of the passage of a nervous impulse along nerve fibers are not demonstrable as attended by chemical changes, or loss of normal irritability as a mani-

festation of fatigue.\* But in the central nervous organs it is found that their function is dependent on an adequate supply of oxygen, and this implies that "in nervous as in muscular substance a metabolism mainly of an oxidative character is the real cause of the development of energy.† In fact, we do not doubt that toxic waste products attend upon central nervous activity, and this accords with the biological theory that all function is due to chemical changes taking place within the organism, and that the functional activity of a specialized tissue depends primarily upon the changes in its individual cells. The dual character of all conditions of primary fatigue is evident, as is also the importance of recognizing the effects of the self-produced poisonous substances that regularly result from the chemical changes in tissue metabolism within the body, as we are taught by the brilliant revelations of modern chemical physiology and pathology.

*Normal fatigue* from the discharge of tissue energy is therefore shown to be inseparably accompanied by toxic products that contribute to the effects of fatigue. *Pathological fatigue* represents a further development and persistence of this condition in the organism. Stimulation too soon repeated, without giving time for rest and repair, finds nerve cells in fatigued areas having less power to act because of inanition from deficient rest and nourishment; they are also hindered in action by the incomplete removal of the toxic products of previous action. Then assimilation is further hindered—first, by the lessened nutritive quality of the blood from the presence of non-eliminated toxic materials; and second, by the probable toxic weakening of the cells' power to assimilate the nutrition that is furnished to them. The development of a manifestly morbid condition may be very slow and insidious, or more rapid according as the balance of the processes of constructive and regressive metabolism is more or less on the side of impoverishment, exhaustion, and weakness. From the gradually failing elimination the local inanition may become more general, and the first results are an increased excitability from weakened resistance and inhibition, with a quick exhaustion of the nervous system under exercise. These are the constant characteristics of neurasthenia. Thus, as Kowalewsky ‡ says, "a locally limited overstrain of a certain part of the nervous system may lead to general exhaustion and neurasthenia." Hence neurasthenia has been defined by Ziemssen § as "a functional weakness of the nervous system, varying from the slightest degrees in simple localities to entire loss of strength in the whole nervous system." Arndt || states the characteristics of neurasthenia to be "increased excitability with a tendency to rapid fatigue, especially of the muscular system." He notes particularly also the cerebral irritability and hyperæsthesia of the cranial nerves, especially those of the special senses.

The remarkable experiments of Hodge ^ are most sug-

\* Bowditch. *Journ. of Phys.*, vol. vi, p. 133.

† Foster. *Physiology*, Fifth Eng. Ed., 1890, pp. 914-918.

‡ *Centralblatt f. Nervenheilkunde*, October, 1890.

§ *Neurasthenia*, Wood's *Monographs*, vol. i, 1889, p. 534.

|| *Art. Neurasthenia*, Tuke's *Dict. Psych. Med.*, 1892, vol. ii, p. 843.

^ *Amer. Jour. of Psychol.*, May, 1888, May, 1889, and Feb., 1891.

gestive as demonstrating the physiological shrinkage and recovery of cell contents in spinal ganglion cells; it is shown that upon stimulation and upon normal exercise the histological changes of breaking down and building up of cell contents are accompaniments of the physiological discharge and restorage of energy, and as being normally attendant upon fatigue followed by rest.

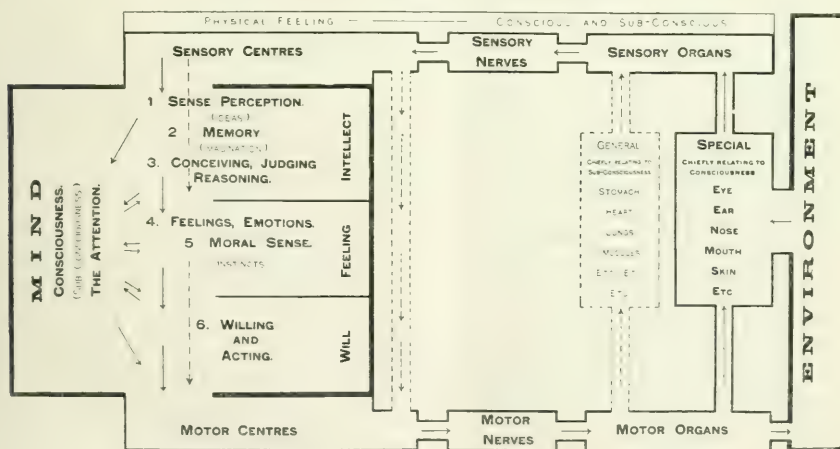
The conditions of the organism in normal and pathological fatigue being thus understood, we have a basis for the study of the relation thereto of the mental symptoms of fatigue. It is agreed by all observers that the symptoms of nervous exhaustion are mainly subjective. The objective symptoms need not be dwelt upon here; the commonly noted manifestations of increased excitability, irritability, and restlessness are readily recognized as representing the internal hyperæsthesia so significant of the "irritable weakness" of nervous exhaustion. The purpose now is to show the significance of a few easily and, in fact, commonly recognized subjective or mental symptoms which stand as distinctive signs of fatigue. They furnish a ready index of the fatigue and auto-intoxication of nerve and muscle tissues as a guide for diagnosis, prophylaxis, and treatment; and the general symptoms of nervous exhaustion can be understood better and earlier by the proper interpretation of the mental symptoms.

3. *Some Elementary Facts of the Nervous and Mental Mechanism.*—In order to make clear the changes that we call symptoms in the mental manifestations, it is necessary to note some elementary facts in the relations between the

signed to represent the *nervous and mental mechanism*, and to show some of the relations of the inner activities that we call mental, to the body in general, and to the environment.

Let us suppose that we can look into the region of conscious mind as into an inclosed place, and a section being made of it, we can see noted thereon, as in the "field of consciousness," the modes of mental action as they are designated by common agreement. At the other end of the diagram are noted the organs of special sense through which stimuli from the environment start impulses that are conducted along sensory tracts and produce physical sensations in the sensory centers in the entrance to the field of consciousness. When these sensations are intense enough to pass over "the threshold" of the field of consciousness, there is a conscious mental perception of such sensations, as of sight, hearing, and the like. This is the initial event of the process by which we mentally see, perceive, and know something in the environment; there is, through sensory action, the presentation in our field of consciousness and the *perception* of what we call the image or idea of the external thing. But we may immediately remember that we have seen the same object before; and we become conscious of an action of *memory*, by which we retain impressions received before, and can recall them by the law of association of ideas. We image them again or imagine them. Thus a complex mode of mental action arises—there is *consciousness*, then conscious *perception* of a sensation, as from the sense of sight and *memory*, acting all together. Hard upon this comes the higher process of ide-

### NERVOUS AND MENTAL MECHANISM



functions of the mind and body. While they are very complex in their detail, there are still certain broad generalizations that we could readily grasp but for the difficulty of keeping a number of the elements alike prominent in our minds at the same time while studying their interplay. This may be aided, with some exercise of the imagination, by the tabulated diagram here presented. It is de-

scribed or intellection—the comparing process, by which we *conceive* abstract notions of things; *judge* them by comparison and *reason* about them. All these may be included also in the mode of consciousness along with perception and memory, and form parts of a complex process of knowing, or intellection, although we name them as separate actions. Whenever we talk with a man we gauge and test

minutely all these operations of his mind with great practical accuracy. We estimate his mental quality and power; we judge the man by what his mind can do.

One of the points of present interest is now before us; as the antecedent fact in the mental process just described, we must premise the state, or existence, of consciousness, without which there can be no mental action. We may say that there is latent consciousness in an unborn infant that soon after enters upon conscious life; then consciousness springs into action, and the first perception is likely to be of sensations from the sense of touch. But active consciousness is always attending to some presentation in its field, to the more or less complete exclusion of other presentations. While a multitude of sensations are thronging into the sensorium through all the organs of special sense, the *attention*, being fixed upon some intensified perception, excludes all but this intensified one. The same is true of a presentation of memory or of a process of reasoning; or all these may be involved in a complex object of attention. Whenever, by the action of what we call the attention, we hold in mind a perception, a memory, or the data of a process of reasoning, we are exercising the memory also in the very act of retaining all these elements of the mental process. On the other hand, we know that by the attention we can control the memory, by controlling and changing the flow of ideas it recalls; and all this goes to show the inseparable working together of these processes.

The *attention* is a mental element of the greatest interest, and is commonly regarded as meaning a "concentration of consciousness." According to Sully,\* it may be defined as the active intensification of consciousness in particular directions. Whatever, at any time, "occupies the mind" is for the moment the supreme object of attention. The attention is one with active consciousness, and is often described as accompanying every other mental action.

It is a common experience, in reverie and in dreams, that a spontaneous flow of ideas is continually passing through the mind; one item follows another in the train of associated ideas, through the working of memory and imagination by the laws of habit and association, without direction or control. The attention is then said to be acting in one of its two forms, and this form is *spontaneous attention*. It is also called *reflex attention*, as it acts by being attracted to the idea or object in the mind that most interests it, or keeps it on the alert, or stimulates it. The idea may be intensified in interest by pleasurable, or painful *feeling*—by a desire or a fear. The act itself of attention to such an object of thought increases the intensification of it and tends to keep ideas of kindred nature in the mind; the mind dwells upon them, is absorbed in them.

*Voluntary attention* is the other form of this mental function; and this is at the very center of interest in this inquiry. It is spontaneous attention with the added power of direction and control; the attention is thus inseparably associated with the will, volition, or controlling power. The essential fact is that in voluntary attention lies the

mental activity of inhibition; it is inhibition working through attention. According to Foster, just as physiological inhibition plays its part in the lower mechanisms of the body, so is it important in the whole work of the central nervous system. Also just as all voluntary muscular actions are under the control of an attending will, so is the directing and concentrating of the attention upon a chosen thought an act of volition. A man controls his own mind by willing his attention, as it were, to be fixed upon some one item or object, in the train of presented ideas, to the exclusion of others. He thinks about what he chooses to think about, and inhibits mind-wandering. He may make the most worthy object interesting; this is intensified by holding in mental view its worthiness, and thus the attractions of less worthy interests and emotions are resisted.

Sully says it is pre-eminently by acts of attention that all the elaborative work of thought is effected, and that the attention is the great conditioning factor in our intellectual life; all great intellectual achievement involves energy of will acting as voluntary attention. The student attains to this power by training and education of his higher mental control; the man who chooses the path of wisdom and rectitude exercises and strengthens his power of voluntary attention by the practice of self-control in inhibiting the impulses of his passions. Thus it is that voluntary attention is in close relation with the highest as well as the latest developed acquirements of the mind in its power to use the force of nervous energy to the best effect. It is well known that the latest acquirements are soonest impaired with the abatement of normal energy.

Every exercise of the will in attention is accompanied by the expenditure of energy, and by the "sense of effort" that occurs particularly when the attention works against some resisting motive, interest, or feeling. This directing and inhibitory control is at its best in the equilibrium of health of mind and body, and therefore it is a most important means of estimating mental health and vigor; mental disorder is commonly attended with disturbances of the normal process of attention, as will directly appear in the discussion of mental symptoms. This constitutes one of the points of great diagnostic value.

We have so far concerned ourselves in this discussion quite exclusively with the processes of knowing, or intelligence. But we are always conscious of another order of mental phenomena—the *feelings*—and they are of pleasure or of pain, or they may be in varying degrees agreeable or disagreeable. From the lower forms of bodily pleasure and pain, upward in the scale to those aroused by the perceptions of color and music, the feelings are said to be "corporeal." But the purely mental feeling that always attends upon pleasurable or painful ideas is inseparable from them. Without ideas there can be no such feeling; and according to its intensity a feeling of pleasure or pain intensifies the idea it accompanies and makes it prominent in consciousness, tending to attract more strongly and to hold the attention. Thus, as has already been shown, there may be an antagonism between worthy and unworthy ideas and feelings, or in the moral sense of right and wrong, with need of the inhibitory power of voluntary attention to choose,

\* Art. Attention, Tuke's *Dict. of Psych. Med.*, vol. i, p. 106.



control, guide, and conduct. This brings out the opposing factors in the operation of will, attention, ideas, and feelings. The feelings excited by ideas prompt to action, which may be inhibited or augmented by an opposing or consenting will.

Referring now to the diagram, the relations of these activities are seen to be noted in their natural order. Feeling follows upon intellection, and all the included mental activities are operating in the field of consciousness; the outcome of this interplay is in the union of *willing* with *acting*, at the point where the resultant of the mental forces appears to act upon the motor centers, or stimulate in them the impulses that end in the setting free of muscular motion. Thus the picture of the "nervous circle" is now complete, and shows the working of the nervous and mental mechanism under the stimulation of sensations through the special senses. Then consciousness, through the attention (these two being *general* states or modes of mental action), knows or "sees" in the very mind's eye the *special* modes of action which we call sense-perception, memory, reasoning, feeling, and the willing of motor impulses which end in muscular motion. This completes the "circle."

The sensations from the special senses are those of which we are most conscious; they are of high intensity, but we little realize that they are small in volume compared with the great inflow of organic sensations of which, in normal conditions, we are not conscious. These organic sensations that, according to Ribot, give us the *sense of body* or of *personality*, are of low intensity but vast in volume; proceeding from every minute part of the tissues and organs of the body, their inflow along sensory tracts enters the sensorium beneath the "threshold of consciousness" into the region of subconsciousness. Their origin is shown in the sources noted in the fainter letters in the diagram and their course by the dotted lines. The muscular sense, which is complex in its origin, includes feelings that afford an example of the more pronounced of these organic sensations. Thus we get the sense of weight and posture. Again, there are those not felt in normal conditions, but, like hunger and thirst which are general in their origin, may become intensified so that at times there is consciousness of them. There are still others, as in the morbid conditions of hyperæsthesia and paresthesia, that appear as pain or general feelings of misery; they are vague in character and their sources often can not be determined.

These organic sensations and their alterations are of such a nature that they afford another point in the nervous and mental mechanism of great diagnostic value. In normal states, where all is well with the organism in the equilibrium of health, they constitute the sense of well-being. Here again we have an important means of measuring any falling off of nervous vigor; from the slighter alterations of bodily feelings in fatigue to those that create a persistent sense of ill being, these changes cause variations in the "emotional tone" that are the most sensitive indices of the degree of fatigue and exhaustion, both normal and pathological. The emotional tone is thus seen to be affected in two ways: There may be in health all degrees of pleasurable or painful mental feeling between the extreme of exal-

tation and depression, according to what one has to think about; in this case a lowered emotional tone from grief or care may be a passing event, or, if prolonged, may have a directly debilitating effect upon the organism through the motor tract of the nervous system. The stimulant and depressant effects of the natural emotions upon the circulatory system and upon bodily health in general are well enough known. On the other hand, a persistent state of morbid depression of feeling may be no more than the mental concomitant of bodily ill-being, however it may have been induced. There may be three events in the train: first, undue care, real trouble, and anxiety or grief may imitate a general condition of ill-being, which in turn may be the cause of morbid depression as the third event. The first in this order may be entirely wanting, but the real condition of ill-being, through impairment of health and nervous vigor, must exist from some cause before the strictly morbid mental symptoms can appear.

4. *The Alterations of Mental Functions that are Significant as Symptoms.*—It now remains to describe the special alterations in some of these prominent factors of the mental mechanism and their significance in conditions of normal and pathological fatigue. In *normal fatigue* it is to be kept in mind that the dual physical condition is one of the expenditure of nervous energy in work to the immediate fatigue of nerve cells, and the accumulation, locally and in the circulatory system, of toxic waste products, and that the processes of nutrition and elimination require time and rest. The mental concomitants of this condition are a diminished sense of *well-being* or a feeling of fatigue sometimes amounting to a sense of *ill-being*, which includes in its complex causation the influence of the toxic elements. The emotional tone is lowered and there is less vivacity of feeling. There is also lessened mental activity in general. Voluntary attention is fatigued—that is, the mental inhibition is lessened, with diminished control over the attention, and one is conscious of an extra sense of effort in mental work. There is "mind wandering." The logical processes work more slowly and with less effect in making comparisons and judgments and in reasoning to conclusions—the tired attention with effort holds on to one member of a proposition while another slips away. There is a consciousness of mental inadequacy and difficulty in keeping awake. This is the common experience of evening tire. Restoration follows upon a due amount of rest, sleep, and nutrition, and the somnolence disappears when the acid waste products, etc., in the circulation are removed.

The condition of *pathological fatigue* is induced when the process of restoration is continuously incomplete. Then we have to conceive of deficient nutrition and an irritating intoxication, as both contributing to the "irritable weakness" which is a manifestation of the characteristic hyperæsthesia. We may now note the persistence of significant alterations of the feelings, the irritability of temper, the weakening of the power of voluntary attention, and the effects of these alterations. The patient may complain of painful or miserable bodily sensations, hyperæsthesia and restlessness, and often of paresthesia in various forms. The symptoms may be analyzed and classified according

to the order of their appearance and the functions affected.

The *first order* of mental symptoms of pathological fatigue in the importance and earliness of their appearance may now be noted. These most obvious mental signs are the characteristic *depression of feeling, a lowering of the emotional tone, and a sense of ill-being.*

The symptoms quickly reflect debilitated bodily conditions that are the sources of the "miserable feelings." These subjective indications are often the only ones of the existing exhaustion in its complex character; again they are corroborative of a suspicion of general neurasthenia when complaint is made of some local functional disorders. In other words, local disorder is often shown to be simply an expression of general neurasthenia, of which the only diagnostic evidence is in the mental symptoms.

The *second order* of mental symptoms in time of appearance is usually the persistent *decrease of the power of voluntary attention (reflex attention) and sometimes of memory; there is also the sense of inadequacy of effort.*

These symptoms refer to the attention which acts in a more spontaneous and reflex manner as its control is weakened; the memory is weakened in its power of retaining and recalling ideas. This lessening of inhibitory power and mental activity in general shows the abatement of cerebral energy. It does not always appear to the observer for the reason that the patient may draw upon the reserved nervous energy, and put forth more effort in the act of controlling his attention, and succeed in doing it. But he is both expending energy more rapidly in so doing, and is conscious of the need of increased effort; he will usually readily confess it on being questioned. This consciousness finally amounts to the very characteristic sense of inadequacy. This symptom of weakened voluntary attention is also an early one and very diagnostic. The patient will often complain that he can not keep his thoughts on his work or business, or has to read over again what he reads and can not remember it. One patient said: "I can not sense it"; and another: "I can not center my mind on what I try to do."

A *third order* of symptoms may now arise, and it is an interesting fact that they grow out of the other two orders and are their logical consequence; these are *morbid introspection, retrospection, and apprehension (worry and hypochondria).*

These symptoms, when manifestly developed, mark a graver degree of fatigue. The emotional tone being lowered, the patient, in a state of depression of feeling, is prone to "look on the dark side of things." Ideas are intensified that are accompanied by painful feelings, which are thus in harmony with the prevailing emotional tone. There being also a lessening of nervous energy in voluntary attention, it can not inhibit the intensified painful ideas and feelings, and there is consequently *worry* about the present, past, and future. The vague fear arises of being unable to meet the requirements of the future. The increasing sense of present inability gives intensification to the characteristic sense of inadequacy noted by Beard as being always so prominent.

There is one other set of symptoms to be mentioned as constituting a *fourth order.* While those previously noted are purely mental, these are partly so, but relate chiefly to alterations that cause peculiar bodily effects, and are often manifest to the observer. These symptoms are *changed organic sensations, physical and mental irritability, and restlessness; diminished sensitiveness, dullness, and languor.*

There is apparent irregularity in these changes of bodily feelings and their manifestations—the intensifying of some and the lessening of others. Arndt\* says: "It is clear that the increased hyperæsthesia which a degenerating nerve at first presents can not last long, and that soon decreased excitability, bluntness, paresis, or whatever we call fatigue and exhaustion, must take its place."

There is not alone hyperæsthesia, with the external signs of irritability and restlessness, but there is much diminished sensitiveness. Some cases are altogether of the latter character, and many present both conditions at the same time in some particulars. It may be a question of the different effects of differences in the toxic waste products. While chemical physiology and pathology do not yet enable us to ascribe sensory and motor disorder definitely to the influence of poisons produced within the organism by its own activity, it can not be doubted that both the conditions of nervous irritability and those of dullness, languor, and stupor may be so caused. It is certain that such external manifestations may be caused as the direct expression of defective functional activity in cerebral centers that are the source of the nervous energy which innervates and controls both the somatic and mental mechanisms. The study of physical expression, which Darwin raised to the dignity of a new science, shows that while there is certain voluntary control over it, still the manifestations in the muscular movements of expression, whether occurring in the face or the extremities, have a direct automatic dependence upon interior states of the central nervous system, which are thus externally reflected. The inflow of organic sensations to the sensorium has its complement in the constant, regular, and subconscious transmission of nerve force from central cells to the muscular periphery. This accords with Gowers's statement that every structure of the brain concerned with sensation proper is connected directly or indirectly with a part concerned with motion; and, in regard to the unstable condition of brain cells in disease, when the equilibrium between the discharge of energy and the inhibition of it is disordered, "the discharge may depend on the production of force within being increased in excess of the resistance, or on the resistance being duly lessened."

In the common forms of insanity are seen the most pronounced expressions of excessive or diminished central activity, and this applies alike to innervation and inhibition, whether mental or somatic. In the belief of the writer† it is possible to detect important variations in the several elements of mental activity in normal fatigue and nervous

\* Loc. cit.

† Pathological Fatigue or Neurasthenia. *Amer. Journ. of Insanity*, July and October, 1891. Also The Shattuck Lecture, 1891, *Trans. of the Mass. Med. Soc.*

exhaustion; for example, the letting down of mental power in voluntary control, with the consequent lessened inhibition of verbal expression of grief and worry, or excitability and aggressiveness. Bancroft\* has made an instructive application of the physiological principles of expression to the study of facial expression of the emotions in insanity, and of expression in posture, etc., as the results of habit in automatic muscular action. His work gives definite value to the clinical use of photography in the physical expression of mental changes.

All such clinical studies of mental symptoms demonstrate the value of precise appreciation of the changes in the elementary mental activities. It is common to observe in mania either excessive uninhibited mental and motor activity, or the quite normal control of the latter along with the gravest deficiency of mental inhibition. Again, there is excessive nerve-muscular activity or tension in fixed attitudes, in the mental and motor expression of painful emotion in melancholia, in consequence of lessened inhibitory will power; and still, again, all expression may be abolished in the real mental stupor of melancholia and mania. This apparent abolition may also be due alone to the fact that, while perception and ideation are quite normal, the power to give expression to them is diminished or lost either in the failure of the mental function of willing or of excitability in the motor centers. A man at the McLean Hospital, who was apparently in profound stupor, afterward said: "I wanted to answer you, but couldn't make my jaws go." A woman, who would stand in a fixed position for hours with almost entire loss of muscular movement and expressionless face, could respond to kind words only by directing her eyes, and they would fill with tears. When she was well, the next year, she gratefully told what had been said and done to her. The apparent stupor is often mistaken for the real condition.

These discriminations of the mental processes being once established, they have the highest therapeutic value in their preventive application. Hence the thesis of this paper—the importance of an early appreciation of the mental symptoms of normal fatigue that tends to nervous exhaustion, for they are prodromic of its graver forms. Moreover, the recognition of the significance of changes in the motor and sensory manifestations in the direction of languor as well as irritability, anæsthesia as well as hyperæsthesia, is of the first importance in the difficult task of managing convalescence from true neurasthenia. The "irritable weakness" includes the liability to quick exhaustion of the small increments of nervous energy that have been slowly gained, and therewith the speedy reduction of sensory as well as motor power to the degree of "bluntness," as Arndt has stated it. Pathological fatigue, or nervous exhaustion, being shown to be a condition in which there is a direct and constant relation between physical disorder and mental symptoms, these should be noted, together with both the increase and the blunting of sensitiveness, in any comprehensive definition of the disease. It may therefore be defined as follows: *Neurasthenia is a morbid condition*

*of the nervous system, and its underlying characteristics are excessive weakness and irritability or languor, with mental depression and weakened attention.*

This method of analysis into four orders of symptoms is applicable to all cases of neurasthenic disorder of the physiological activities involved, from the passing over of normal into pathological fatigue, in the simplest forms, to the gravest manifestations of emotional disturbances, disordered attention, and sensory and motor irritability and languor. The symptoms included in the first three orders are regarded as purely mental; those characterized in the fourth order, while referring to the well-marked development of changes in sensitiveness and activity of bodily functions, imply the necessary association with them of the mental symptoms before noted. These changes of bodily sense and activity may be detected, in the slightest degrees, in the earlier stages of neurasthenia. The value of the practical application of these discriminations in diagnosis may now be illustrated by describing some of the special ways in which certain symptoms must be interpreted. By this method of analysis we may readily estimate the significance of the symptoms of depression of feeling, of weakening of voluntary attention, and of worry. But there are certain more subtle effects of the mixed condition usually found of hyperæsthesia and anæsthesia.

One of the most striking special symptoms which the foregoing considerations point out and may serve to explain is a paradoxical one, but one most commonly presented for clinical observation. The sensory function by which the complex normal feelings of fatigue are appreciated may itself be overexercised to exhaustion. There is *tire of the power to feel the tire*. This condition may be called *fatigue anæsthesia*, and, beginning with the early stages of pathological fatigue, there is usually some degree of it. Every physician has experienced this when, after a night of anxious professional work, with loss of sleep, he has a day of excitable alertness of mind and body, and there is a sense of nervous strain, with, perhaps, undue mental facility and physical irritability. Many hours' sleep may be gained in the following night, but, instead of feeling refreshed, he has a sense of *malaise*, languor, and fatigue. The real fatigue was greater the day before, but he could not feel it as such; it is not until the second day after the excessive effort that he has recovered his exhausted power to feel the fatigue. In a lesser degree this fatigue anæsthesia becomes a constant accompaniment of the neurasthenic condition. Overworked women, professional and business men, "work on their nerves," and say they "don't feel tired, and nothing is the matter." They "feel better" when actively exercised in their customary labors. This condition comes on insidiously, and is a most dangerous one. The patient is neurasthenic before anybody suspects it; with the impairment of the natural fatigue sense, the mental effect is that he will not believe even his physician's diagnosis of "fatigue." He is therefore prone to look for some other reason for his sense of ill-being and inefficiency, and finds in retrospection cause for self-reproach and hopelessness in the future.

Fatigue anæsthesia manifests itself in connection with

\* Automatic Muscular Movements among the Insane. *Amer. Jour. of Psych.*, February, 1891.



another special symptom peculiar to conditions of "fatigue"—that of "morning tire," sometimes called "morning misery." Extreme examples of this are seen in the victims of dissipation. In ordinary cases of pathological fatigue it is a persistent symptom; the patient is likely to awake in the early morning unrefreshed by a fair amount of sleep and often in the depths of depression. The physical signs of exhaustion are then more manifest. These symptoms represent the truth as to his neurasthenic condition. After breakfast he feels better, and by the middle of the day the stimulation of the daily interests and press of business has apparently restored his good feeling. At the close of the day he is comfortable and cheerful, laughs at his morning fears, and is prone to overdo himself in recreation or evening work. That day's experience is regularly repeated. Each night he rests enough to recover some of the feelings that attend upon "fatigue," but he often does not recognize it in the absence of the true fatigue sense. A still further blunting of this sense is caused by the ill-timed stimulation of unwisely continued effort. Along with the restlessness of his "irritable weakness" there is a fictitious sense of well being because of the temporary abolition of the sense of ill-being, as in mild intoxication by alcohol.

In the management of convalescence from neurasthenia, or of cases that would get well if they could be managed, there is nothing more discouraging than the succession of relapses that they undergo. Such patients, having been subjected to the rest treatment, may be fat enough and maintain a fair degree of comfort when effort is kept within the limits of pathological fatigue. They complain of tire and various discomforts upon a little effort, which must be made in order to gain by physiological use the strength to make it. It seems a never-ending process; some patients can not abide its slowness and make effort too soon; others resist great persuasion to make enough. But some event may occur that excites desire or a sense of duty. The undue quickness of response to the stimulation of interest and attention is to be recognized as an evidence of irritable weakness. The apparent ease and unwonted zest of the effort is not a manifestation of real power; it means that there is a speedy blunting of the sense of fatigue. The reaction of exhaustion and mental misery that follows shows the real weakness and the need of unflinching patience and discretion. Most patients of this class have to be taught how to recognize the mental and physical signs of fatigue peculiar to themselves other than the normal feeling of it. They must also be taught that some degree of fatigue thus manifested must be regularly incurred as wholesome tire. But both patient and physician must be guided alone by individual experience and judgment as to the amount of effort. Feeling is often a misleading guide for doing or not doing.

Many neurasthenic people are plied with recreation to "distract the attention," and go on journeys in search of health, when it is not stimulation, mental or physical, that is needed, but rest. The physician may save many a patient from such a final strain that would precipitate a breakdown by recognizing the fact that his apparent ability to

do things without fatigue when the mental signs of it are present is the strongest indication that he has reached a dangerous degree of nervous exhaustion marked so plainly by loss of the fatigue sense. In such cases, after a course of rest treatment, which must often be more or less modified, exercise becomes most important in the form of gentle bodily effort and mental stimulation by recreation in gradually increased amount. The guide to the limitation of exercise is to be found in its effects, such as the slight return of restlessness and insomnia at night and the mental and bodily discomfort liable to appear on the following morning. Exercise may be pressed to the extent of not causing these effects; it promotes nutrition and excretion of waste products, the free action of the skin, etc.

The physician will look to the therapeutics of tonics and nutrition with careful attention to all the forms of elimination. But while he is doing this the successful treatment of neurasthenia means the careful recognition of all its signs. The earliest indications for diagnosis and the clearest for treatment—and often the only ones—are the mental symptoms. It is the conditions of fatigue that are to be treated, and the study of the working of the fatigue sense affords the safest and surest guide, although its signs are so often negative. A correct and fine appreciation of what the mind can do enters into our commonest knowledge and experience, and we use the most familiar words to describe its operations. This paper has been written with the hope that it may be a help to the systematic observation of some of the commonest and most valuable of clinical indications, both for prevention and cure.

## THE PROPER DURATION OF THE LYING-IN PERIOD.\*

By H. SEYMOUR HOUGHTON, M.D.

IN considering the subject of the puerperal state, or the lying-in period, it is necessary to bear in mind the fact that although labor and childbirth are truly physiological processes, and hence to be classed among the normal functions of the human body, nevertheless the effects upon the organism produced by these normal functions are of such a character that they must be regarded, from a clinical standpoint, as pathological.

It is for this reason that the position of the lying-in patient is unique—a position of health so near to disease that the patient must be regarded as a sick woman in order to prevent her from becoming one.

She is a sufferer from a traumatism—has been wounded, and therefore her condition is one which properly belongs to the domain of surgery. For example, a man may undergo amputation of the arm or thigh as a result of injury, and in a day or two, with a normal temperature, good appetite, and undisturbed function, lay as good a claim to perfect health as his neighbor in the adjoining house, who, perhaps, at the same time that his operation took place, was undergoing the pains of maternity. I make this comparison

\* Read before the Hospital Graduates' Club, December 29, 1892.

because therein lies the answer to the question, "How shall we classify childbirth and the puerperal state?"

The science of midwifery is but one of the divisions, though, indeed, a large and important one, of the general science of surgery. The obstetrician, even though he may not be able to ligate an aneurysm or perform a laparotomy, must be thoroughly versed in the principles of surgery in order to properly and safely conduct a case of labor. It is entirely due to the fact of the discovery of pathogenic organisms and their relation to disease or sepsis, and to the further discovery, which has made famous the name of Lister, of the means of destroying these organisms or antiseptics, that not only has surgery in general been nearly revolutionized, but also the treatment of the lying-in patient has been made to conform to the rules which govern a surgical case. I do not wish to be understood, however, as advocating that the same elaborate and necessary details of antiseptic surgery should be followed out in a case of normal labor as is required in a laparotomy or an amputation, except as relates to the attendant himself and to his instruments. Here the minutest detail of personal cleanliness in its broadest sense and of disinfection of his instruments are not out of place and should be conscientiously carried out. But with regard to the patient herself, being surrounded by the proper hygienic and sanitary conditions, she is then free from all ordinary dangers of infection—that is to say, she is in an aseptic condition, and hence does not require the application of antiseptic treatment beyond what is essential as a matter of cleanliness. Carried beyond this point, it renders us liable to the charge of meddlesome midwifery.

It is from this point of view, from the close relationship which exists between midwifery and surgery, that I propose this evening to consider the length of time which the patient who has just borne her child should be under the authority of her attendant for the double purpose not only of recovering from her present illness, but of having that recovery so complete and thorough that it will be permanent, and not the starting point of an endless sequence of pelvic disease.

To this end, I shall first briefly review so much of the changes which follow parturition as is involved in a proper consideration of the subject.

The patient, at the close of the third stage of labor, at which point the lying-in period begins, has lost one ninth of her weight at term. As a result of the intense pain, the muscular efforts, loss of blood, and mechanical injury, she undergoes a certain degree of shock which may vary in intensity from being scarcely appreciable in one patient to a fatal condition in another. Her temperature at first rises, then falls to normal, or may sink below normal if the shock be very severe. The pulse becomes considerably slower—a fact which has attracted much attention and has been variously explained. The blood itself is more hydraemic and more fibrinous, and the secretions, notably those of the skin, are much increased. This state of affairs—namely, the shock due to the impression made upon the central nervous system, the reaction, the sudden transfer of developmental energy from the uterus to the breast, the con-

traction of fibers, and closure of vessels in the uterus, and finally the absorption of serous exudation, œdema, etc., which had previously existed—all make up a series of changes which occupy the first three days, and constitute, according to Barnes, the period just preceding that retrograde process in the uterus and associated structures familiarly known as involution.

This most interesting process in the uterus has been studied by Heschl, whose views have been accepted by the majority of modern writers. He regards it as a retrograde metamorphosis due to a fatty degeneration of the muscular fibers which begins about the fourth day. The regenerative process consists in the formation at the periphery of nucleated cells, developing into muscular fibers, and continuing thus until the close of the eighth week, when the process is complete.

This view is opposed by Säger and Dittich, who regard the fatty degeneration as merely incidental to nutrition, and describe the process of involution as consisting of a shortening and narrowing of the hypertrophied muscular fibers until they have reached their primitive size. The gross appearances of these changes are seen in the diminution in the size of the uterus from a weight of two pounds and a half at delivery to one pound at the end of the first week, twelve ounces and a quarter at the end of the second week, and to normal—which is a little more than two ounces—not until the sixth week, this normal being always somewhat greater than the weight of the virgin uterus. It is an arrest of this process at any stage of its course which constitutes subinvolution, a condition immediately associated with inflammation.

Coincidentally with the changes in the uterus are the changes in the no less important structures the supports of the uterus—namely, the ligaments, vagina, perinæum, rectum, bladder, and pelvic muscular tissues. Any defects in these tissues are as disastrous to future comfort and well-being as a defect in the uterus itself, and their complete involution is just as important. A third factor is the healing of those mechanical injuries to the soft parts produced by the passage of the head through the parturient canal.

Such is the picture presented of our patient at the close of the third stage of labor, and of the various changes which must take place within her before the pelvic organs are restored to their original size and position. This restoration, rapid as it is, it will be observed, requires for its completion a definite period of time—a period which, all authorities recognize, occupies from six to eight weeks. In other words, it is a healing process, just as the union of the broken ends of a bone or of the flaps of an amputated stump is a healing process, and, as such, I believe it should be governed by the ordinary laws of surgery. The first law of surgery is rest, and the lying-in period is consequently a period of rest, so intelligently modified and subdivided that the patient is enabled to emerge from it a well and perfectly healthy woman.

In carrying out this idea, it has been my habit to impress upon my patient that after the birth of her child she has to look forward to a period of six weeks of convalescence, to be devoted solely not only to getting well, but to getting sound and strong.

This period is conveniently divided into two weeks of absolute rest in bed, one week of alternate rest in bed and moving about the room, a fourth in gaining every day for a time the beneficial effects of sunlight and fresh air, and the last two in resuming gradually the ordinary household duties with the exception of lifting heavy weights or any other severe muscular exertion. While insisting upon fourteen days in bed, I do not advise a uniform position on the back. On the contrary, I regard a frequent change of position from one side to the other, and of sitting upright upon the vessel during defecation or urination, as very necessary, first, for comfort and physical ease; secondly, for overcoming stagnation and hypostatic congestion; and, finally, for an opportunity to remove by gravity the clots and other accumulations which, owing to the direction of the outlet in the dorsal decubitus, tend to collect in the vaginal *cul-de-sac*. This plan, carried out with the appropriate treatment, will, I believe, enable us to confidently anticipate a perfect result. Unfortunately, there are two important elements of opposition to the successful implantation of these views. One is the widely divergent opinions held on the subject by equally eminent practitioners; the other is the mass of hereditary and traditional ideas held by the patient herself. Of the latter, the most conspicuous is the belief that the ninth day celebrates the close of the lying-in period, and that any length of time spent in bed after this date is so much worse than lost time on account of the weakening effect of the bed. These ideas patient teaching may overcome; not so when there is no unanimity of views on the part of physicians. A careful perusal of the writings upon this subject shows scarcely a precise agreement. While the majority of the text-books dismiss the subject with the general advice to let the patient sit up on the ninth, tenth, or twelfth day, if the uterus has disappeared below the brim of the pelvis, and then to let the patient gradually resume her ordinary avocations, there are a few who emphatically insist upon practically no rest in bed at all, and others who are equally emphatic in the opinion that the patient should remain flat on her back for a month or more. Of these two extreme views, the first has been upheld by Professor Goodell, of Philadelphia, who, in a paper written a number of years ago, on *The Prevention of Puerperal Diseases at the Preston Retreat*, stated that the patients were allowed to sit up out of bed the day after delivery, and to repeat this once or twice every day while the bed was being made up, until the fifth day, when they were allowed to dress themselves. He claimed as his reasons for this that, first, labor is physiological and should not wear the livery of disease; second, that the upright position tends to contraction of the uterus and a lessening of the lochial discharge; and, finally, that uterine disease is nearly unknown among savages and those nations which leave the bed early.

This paper of Goodell's, from whom I have been unable to discover any later communication changing these views, attracted a vast deal of comment and adverse criticism. It has been especially considered by Garrigues,\* who calls attention to the fact that uterine disease is not unknown

among savage nations; that, on the contrary, it is very frequent. He quotes Johnson, of Washington, who says that among the negroes of the South, pointed out as remarkable examples of the beneficial effects of early rising after childbirth, he found that these very patients presented themselves more frequently for uterine displacements, hæmorrhages, and the effects of subinvolution than for any other complaint. The same can be said of our Indian squaws, though there is no doubt that they can without complaint endure an amount of pain and disease which would render our more highly organized civilized woman an invalid.

While I believe that there are a very few who coincide with the views held by Goodell, I believe still fewer hold the opposite extreme view—that if one week's rest is good, four or five are better. An instance of this is found in the advice given by Wood,\* who evidently looks upon parturition as a most disastrous proceeding. He declares that the patient should be kept in bed on her back for four weeks, and should not at any time assume the upright position. At the end of the fourth week an examination should take place and any lacerations, cervical or otherwise, which may exist, be repaired. The vagina is then to be packed with compresses for the support of the uterus until the eighth week, when the patient is dismissed, to return for a monthly examination until a year has elapsed.

I have said that two weeks should constitute the length of time that our patient ought to remain in bed, and that the third week should be devoted to alternate moving about the room and resting upon the bed or a sofa. The uterus at the close of the second week weighs somewhat more than twelve ounces, which is five times greater than normal, and should consequently not be regarded as yet in fit condition to undergo the strains and pressures put upon it by a resumption of household duties. It is, however, entirely contained within the bony pelvis, supported in its proper position by the soft tissues which surround it. These supporting tissues—which are made up, as has been said, not only by the ligaments, but by all the muscular structures within the pelvis—should now be the ones to receive attention, and be given the opportunity for development.

They require for this purpose a certain amount of functional activity, having reached a point where any further physiological rest would probably lead to an atrophic rather than to a developmental condition. This corresponds to the principle recognized in passive motion as applied to a limb after a fracture or a dislocation. The third and fourth week of the puerperal state, therefore, represent a developmental period following one of physiological rest, with the additional factor, during the fourth week, of promoting by outdoor air and gentle exercise the general health and nutrition of the patient.

Having reached the close of the first month, there remain two weeks before the uterus resumes approximately its natural condition. The patient should by this time feel in perfect health, and should have no symptoms referable

\* Garrigues. Rest after Delivery, *Amer. Jour. of Obst.*, 1880, p. 840.

\* W. B. Wood. *New York Medical Journal*, 1880, vol. lii, p. 126.



to the pelvic organs. The uterus is still, however, a trifle enlarged, the supports still lack their full strength and tone, and it is at this time that any extraordinary muscular exertion—as of lifting heavy weights, climbing stairs, or other hard work—may result in endless mischief by stretching the ligaments and displacing the supporting structures. By impressing this fact upon our patient, there should be no difficulty in securing from her the resolution to avoid all severe muscular exertion during these last two weeks, and to engage in only the lighter household duties.

A faithful adherence to this period of convalescence, combined with a proper and appropriate conduct of the case, will, I am confident, except in the presence of extraordinary complications, yield the gratification of seeing in our patient, one or ten years later, a woman free from the so frequent evil consequences of childbirth.

301 WEST EIGHTY-EIGHTH STREET.

## RECTAL ULCERS AS A COMPLICATION OF PARAMETRITIS POSTERIOR.\*

By HERSEY G. LOCKE, M.D.,

CHIEF OF CLINIC, DEPARTMENT OF DISEASES OF WOMEN, VANDERBILT CLINIC,  
COLLEGE OF PHYSICIANS AND SURGEONS.

I BRING to you for your consideration this evening a question which has been of very considerable interest to me for many months past, and which, though a minor point in the pathology and symptomatology of pelvic diseases, may prove of assistance to us in our treatment of this disorder and the relief of the pain resulting therefrom.

The great majority of those who come to us for help do so because they have *pain*; and if we relieve this more or less completely, restore them once again to their old condition of health and strength, we shall find them contented and happy, little heeding the pathological remnants of which we alone are cognizant.

In the department of gynecology, I believe I may safely say that those patients suffering from chronic inflammation of the pelvic connective tissue are by far the most unsatisfactory and the greatest tax upon our ingenuity and patience. Prominently among these are those suffering from posterior parametritis, or inflammation of the cellular tissue lying beneath the folds of Douglas.

Savage, in his clear description of the subperitoneal tissue, writes: "A plane extending from the middle of the posterior surface of the symphysis pubis to the point of articulation of the *third* with the *fourth* sacral vertebra, which intersects the uterus at the junction of the body with the neck, will, with rare exceptions, divide the pelvic cavity into two spaces—a peritoneal and subperitoneal. The parts lying below this plane are imbedded in the cellular tissue which occupies that portion of the pelvis which contains no intestine. The structure consists of fibro-elastic, muscular, and connective-tissue elements, and is so arranged that its meshes or cells communicate freely with each other."

On carrying our examination further, we shall find that from the posterior surface of the uterus, a little above the

junction of the cervix with that organ, the muscular bands of the folds of Douglas, surrounded by this same cellular and loose connective tissue, pass to the lateral parts of the sacrum, nearly at the level of the *second* vertebra. The upper so-called posterior insertion of these muscular bands varies considerably, though it would seem that they always loose themselves in the muscular walls of the rectum and subserous connective tissue. The anterior or lower insertion is formed by some muscular fibers from each side coalescing behind the uterus and forming a single unique muscle, called by Luschka the *musculus retractor uteri*.

Thus it would seem that where exudation into the meshes of the cellular tissue has taken place, and where the pathological condition has persisted sufficiently long, the perirectal tissues must frequently be involved.

The pathological process in this locality varies little from that found elsewhere in the body. In cases where the poison is not sufficiently virulent to cause suppuration, there must be extensive exudation of albuminous or fibrinous material in the meshes of the cellular tissue, as shown by soft swellings that can be observed shortly after the beginning of the process. Where the case is recent, the connective tissue is largely infiltrated with gelatinous material containing numerous small cells. In the subsequent chronic condition the soft swellings become dense, the fluid portion having been absorbed, and out of the cellular tissue is formed circumscribed hard tumors poorly supplied with blood, often reaching to the inlet of the pelvis, insinuating themselves between the folds of Douglas, to the rectum or even becoming prolonged beyond the limits of the true pelvis. The ultimate cicatricial contraction and hardening is readily found with the microscope.

Schultze is of the opinion that parametritis posterior is generally either confined to one side or much more extensive on one side than on the other, preferably the left—viz., the rectal side.

*Ætiology.*—We may roughly divide our patients into three classes:

1. Virgins.
2. Nullipare.
3. Parous women.

Among virgins, the most constant pathological factor is chronic pelvic congestion due to constipation. Secondly, traumatism followed by infection, such as wounds caused by the introduction and wearing of pessaries, gynecological manipulations, and finally specific vaginitis due to infection from dirty fingers, cloths, sponges, etc.

In regard to the other two classes, Schultze conclusively states that the causes of parametritis posterior, though pretty often of puerperal origin, are, it must be stated, far more frequently not so. The occurrence of puerperal parametritis posterior is very commonly due to infection after laceration of the perineum, or even after some trivial injury to the posterior wall of the vagina. The exudation is by no means always considerable, the acute stage is often very short, and the local phenomena very slight. The febricula of puerperal women, the single rise in temperature formerly spoken of (milk fever), is often nothing but parametritis posterior.

\* Read before the Hospital Graduates' Club, January 26, 1893.

In unmarried women and in those who have never been confined, parametritis posterior is generally subacute or chronic from its commencement. Mechanical injury, repeated straining of the folds of Douglas by the passage of large masses of feces in habitual constipation, perhaps even infection from fissures of the rectum, and extension of the processes of endometritis to the parametrium, especially as a result of the stagnation of the catarrhal secretion, appear to be the principal causes of parametritis posterior chronic from its commencement in persons of the class just mentioned, while acute non-puerperal parametritis, in the majority of cases, is either traumatic or depends upon infection which is not infrequently gonorrhoeal.

In a large number of cases this pathological process, exudation, hardening, and contraction is not limited to the immediate neighborhood of the uterus, but is concentrated at the posterior or rectal attachment of the ligament, and contraction in this locality means direct injury to the rectal and perirectal tissues.

At this level—viz., that of the first and second sacral vertebrae—the great venous plexus of the rectum has become so concentrated that we have left only the superior hæmorrhoidal vein or its immediate tributaries in which any obstruction to the onward flow of blood results in an over-distention or varicose condition of the distal veins. The morbid tissue changes hitherto described, by their interference with the return circulation, doubtless cause a marked stagnation in and dilatation of the rectal plexus, ultimately producing a condition analogous to that found in the lower extremity.

When to this is added the evil effects of habitual constipation, irritation, abrasion, and septic absorption from the passage of large and very frequently hardened masses of feces, the ultimate development of a varicose ulcer would seem a very natural result.

These ulcers are situated most frequently on the posterior rectal wall, from an inch to an inch and a half above the sphincter; in a general way, I should say that they occur half as often on the anterior wall.

They vary in size from that of a dime to a twenty-five-cent piece and are frequently multiple. On examination with the speculum, a smooth basement of granulation tissue with a well-defined margin is shown. The surrounding mucous membrane is decidedly hyperæmic, and at times covered with a thin coating of mucus. So far as I have been able to determine, they invariably lie in the lowest portion of the rectum, but a short distance above the sphincter ani—a locality where, owing to muscular action and impaction, traumatism would be more prone to occur. The examination is almost invariably accompanied by pain and hæmorrhage.

*Symptoms.*—Let me quote a case from Mathews's *Treatise on Diseases of the Rectum, Anus, and Sigmoid Flexure*,\* just published:

"A lady, aged twenty-four, married, was referred to me by a gynecologist. She had complained for many months with back ache, pain down the thighs, general lassitude, melancholia,

a bearing-down sensation in both vagina and rectum, pain over the seat of both ovaries, constipated habit, leucorrhœa, loss of flesh, irregular menstruation, difficult micturition, and a slight discharge of mucus from the bowel. Upon an examination of the womb and its appendages by the gynecologist, there had not been enough trouble found to account for her symptoms. He treated her for several months, however, and, her case not clearing up, he advised her to consult me. Upon examining the rectum with a speculum, I found it highly congested, very red, and sensitive, and a film of mucus covered the entire circumference of the gut for several inches up. The cause for this extensive congestion was not discernible. I was satisfied, however, that all the symptoms mentioned were purely reflex from the rectum, and proceeded to treat her. . . . The redness of the mucous membrane and all pain gradually disappeared; the discharge ceased and all reflex trouble vanished."

I give you this, not from my own gynecological case books, but from a treatise on rectal surgery. This patient had no rectal ulcers, probably because the obstruction above was not sufficiently complete; but there is little doubt in my mind that a more careful examination would have shown a parametritis posterior. The cure of the rectal condition alone was sufficient to cause a disappearance of her pelvic symptoms. With the addition of ulceration the suffering would have been more acute.

It is a notable fact that ulceration, very extensive in character, may exist in the rectum located above the sphincter muscles and cause very little (rectal) disturbance, or at least the disturbance is out of all proportion in its insignificance to the extent of the ulceration. It is only where the external sphincter muscle is involved in the disease that we have the great distress following.

We have, then, a class of patients suffering from pain located in the ovarian and lumbar region, headache, general depression, etc. Not always is there a distinct history of habitual constipation, and even less frequent are complaints of rectal disease. On examination, we find the parts fairly normal with the exception of chronic metritis and parametritis posterior, as shown by fixation and hardening of the uterus, thickening and tenderness of the folds of Douglas; the physical signs not at all commensurate with the complaints of the patient. Place them in Sims's position, and, on rectal examination, we shall frequently find the source of the reflex irritation—viz., rectal ulcer.

*The treatment* is simply a combination of the established routine, respectively, for the two conditions; for the uterine and para-uterine the use of mild counter-irritation, depletion by means of hydragogue tampons and massage—all directed toward the relief of pelvic congestion, the softening and absorption of the inflammatory exudate.

For the rectum, dilatation so far as is possible in ambulatory cases; where practicable, division of the sphincter under ether with subsequent rest in bed. The treatment of the ulcer is tedious, nevertheless it is gratifying to note the rapid improvement, often apparently out of proportion to the change in the rectal condition. Having thoroughly irrigated the rectum and washed the ulcer with a solution of bichloride of mercury (1-to-1,000), I have found nothing better than the strong solutions of nitrate of silver—from forty grains to a drachm to the ounce. The pure stick and

\* D. Appleton & Co., New York.

other stronger cauterants have, in my experience, not proved so serviceable. The ulcer and mucous membrane is well dusted with iodoform. Following each defecation the patient is instructed to wash out the bowel with warm water and afterward with a saturated solution of boric acid. It would seem hardly necessary to say that careful attention is paid to the action of the bowels. So far as I have gone—and my cases are now quite numerous—my results have been very gratifying.

Briefly summarized, the points which I have endeavored to bring to your attention this evening are:

1. That para-uterine cellulitis posterior, by its hardening and subsequent contraction, obstructs the return flow of blood from the rectum, producing stasis in and a varicose condition of the rectal plexus.

2. By the irritation and abrasion of the mucous membrane, ulceration follows.

3. In a large number of cases the symptoms resulting therefrom are reflex and referred to the genital system primarily the region of the ovaries.

4. Treatment of the parametritis in most cases is not completely successful unless careful attention is directed to the rectum, whereby the reflex and most troublesome symptoms are relieved.

It has been my desire this evening to gather together these little odds and ends of the past two years, and to put them into some tangible form suitable for your consideration.

19 WEST THIRTY-EIGHTH STREET.

## AN EXENCEPHALUS.

By E. T. SHELLY, M. D.,  
ATCHISON, KAN.

The exencephalic fetus which is the subject of the accompanying illustration was born at seven months of a healthy mother who had been delivered of a normal child two years



before. She is twenty two years of age, and nothing abnormal was noted during the course of her recent pregnancy excepting

the unusually large size of her abdomen, which was due to the great quantity of amniotic liquid present—a condition usually existing in this class of cases. The child was said by the attendants to have gasped once, and its weight was about four pounds and a half. All of its parts are apparently normally developed with the exception of the head, neck, and back. The face is directed upward and the cranium is practically absent. The brain rests as a dark mass on the child's neck and back, and the spinal canal is open for quite a distance down the back. This specimen of abnormal fetal development belongs to the class of cleft formations, the growth of some of the dorsal or neural arches having been arrested by some means, so that the brain and the upper portion of the spinal cord failed to receive their usual bony coverings. The specimen was sent undisturbed to the museum of the University Medical College at Kansas City, Mo.

Fœtal malformations and monstrosities have always excited the wonder and awe of the illiterate and superstitious, and many have been the explanations offered in regard to their origin and the significance of their occurrence. Ambroise Paré, the father of French surgery, said, in 1579, referring to such human monstrosities as were thought to resemble animals in appearance: "For of the various and promiscuous confusion of seeds of different kinde, monsters have been generated and borne who have been partly men and partly beasts"; but he stoutly resisted the claim that the paternity of any of them could reasonably be ascribed to the devil, an hypothesis more absurd but no more foundationless than his own.

Malformations in animals were formerly thought to portend calamities. Even Martin Luther once called attention to the relation existing between a monstrous calf and a catastrophe. The occurrence of human monstrosities was considered an evidence of divine wrath, as they were supposed to be sent as punishments to particularly sinful parents—a ghastly anthropomorphic notion which it is feared is even at this late day entertained by not a few ultra-pious persons. The influence of the mind of the mother upon the child *in utero* is also frequently urged as a cause for the occurrence of fetal abnormalities, particularly of the more common forms. Although a nervous connection between the child *in utero* and the mother can not be demonstrated to be any more real than a nervous connection between the setting hen and her unhatched chicks, still every child that is born with a "mark" is accused by the neighborhood "grannies" (medical as well as lay) of having been harmfully influenced by maternal mental impressions. And yet if it were possible for such influence to be exercised, it is doubtful whether there would be any "unmarked" children born. For where is the child whose mother did not fear at its birth that it would be "marked," because of something she had seen or heard or dreamt or imagined or wanted during the child's intra-uterine existence?

Of course there are a great many things connected with the subject of teratology that are still to be found out, and this fact no doubt accounts for the halo of supernaturalism in which the subject is even yet more or less enveloped—a halo which can be dissipated only by earnest and persistent research.



# REMOVAL OF A MELANOSARCOMA OF THE GROIN WITH A PORTION OF THE FEMORAL VEIN.

By CHARLES S. HAMILTON, M. D.,

COLUMBUS, OHIO,  
PROFESSOR OF PRINCIPLES OF SURGERY, STARLING MEDICAL COLLEGE.

Mrs. P., of Circleville, Ohio, was referred to the writer in September, 1891, by Dr. Courtright, of that place. She was a stout, muscular subject, sixty-nine years of age. Two of her brothers and a sister had died of malignant growths. Another sister had had a tumor removed from the breast several years before and still survived. It was impossible to learn the precise nature of the tumors in the various cases alluded to. Examination of the patient disclosed an irregular lump occupying the right groin and front of the thigh, which had developed within the previous five months. Its greatest diameter was five inches in length, parallel to Poupart's ligament. It was only slightly movable, and evidently involved both superficial and deep inguinal lymphatic glands. Veins of considerable size coursed over it, and the extremity was much swollen. The commencing infiltration of skin over the growth, the rapidity of its development, and the bad family history gave striking clinical evidence of its cancerous nature. Removal of the growth was advised and performed at the patient's home on September 4th, with the assistance of Dr. W. D. Hamilton, Dr. Courtright, and Dr. Bowers. An incision eight inches in length was made parallel to and slightly beneath Poupart's ligament. On exposing it, the tumor was found to be about the color of liver, lobulated, and intimately related to adjacent structures. The superficial veins, including the saphenous, being closely connected with the mass, were ligated and divided. A deeply located portion of the tumor surrounded and involved the femoral vein in such a manner that separation was impossible. Therefore that portion of the vein, three quarters of an inch in length, immediately beneath Poupart's ligament was removed after the application of ligatures. Two or three enlarged retroperitoneal glands along the course of the external iliac vessels were detected with the finger and dissected out. Lastly, a nodule involving the skin over the gracilis was excised and the operation concluded. All steps were taken with due regard to cleanliness. The patient recovered speedily, and on October 31st her physician reported that slight swelling of the limb still persisted. Later on an elastic stocking reaching to the garter was worn, and with this assistance the patient was able to go about like any other woman of her age. The entire mass removed was as large as a fist. The diagnosis of melano-sarcoma was confirmed by the microscope.

In September, 1892, the patient detected a painful lump in the region of the sigmoid flexure, and it was supposed by her physician that a recurrence had taken place, though the seat of operation was entirely free from any sign of disease. Within a short time inflammatory symptoms set in, and finally the lump disappeared coincidentally with a free discharge of pus from the rectum. She regained her health, and is to-day as well as ever.

There are two points in the history of this case which seem to the writer worthy of attention:

1. The comparatively long period—eighteen months—that has elapsed without recurrence when the tumor belonged to so malignant a class as the melano-sarcoma.

2. The very trifling disturbance of circulation in the leg and thigh after excision of portions of the femoral and saphenous veins and ligation of numerous superficial veins in an old subject.

# A CASE OF POISONING FROM FOUR DRACHMS OF FLUID EXTRACT OF ACONITE.

By HENRI E. R. ALTENLOH, M. D.,

CHICAGO.

Mrs. J. C., aged thirty, having had some misunderstanding with her husband, and therefrom feeling despondent, took at a dose, with suicidal intentions, four drachms of fluid extract of aconite. She immediately felt a burning sensation and pain in her stomach, followed by lost power of standing, and became very restless. She called her husband, who was in the adjoining room, and he, after finding out what she had taken, sent for me. I arrived about twenty minutes after the poison had been taken, and found her held up by friends over the *pot de chambre*. She had no control over her bowels, and was in agony from the fearful burning sensation in the stomach. After she had filled the pot for the second time, I ordered her undressed and laid on the bed, and administered emetics and atropine hypodermically. In spite of emetics, she could not vomit. Her skin was cold and clammy, with a feeling of numbness. With the aid of two assistants, I began rubbing her with brandy, which was the only thing at hand. She complained of swelling about the tongue and throat, and had convulsive twitchings of the muscles about the face and neck, also dimness of sight; pupils widely dilated. I gave her another hypodermic injection of atropine. Now the symptoms grew rapidly worse. She was unable to move, and almost lost consciousness. She had foaming at the mouth, and could not swallow. Lockjaw, deafness, and complete loss of sight followed; the breathing was slow and regular; the pulse was imperceptible; the hands were clinched.

All this time the assistants were rubbing her with brandy, and in the mean time I sent for *eau sédative* (Raspail's) and tincture of belladonna, of which I gave her a dose, and ordered the sedative water to be used for rubbing in place of the brandy. She began to improve a little: her sight was restored to a certain extent, she was now able to hear, lockjaw had disappeared, and she began moving a little. But now she began to have attacks of the most violent description; breathing became very difficult. She was complaining of pain in the heart and constriction of the chest. Her eyes were brilliant and sparkling and glared wildly, sometimes resting with a fixed stare. She felt a feeling of death, and appeared to suffocate. She was gasping for air and became very violent, and it was difficult, with the united force of three, to keep her in bed. The pain in the heart was fearful. She wanted to tear the breast of the left side, and it was a hard task to keep her from injuring herself. Asphyxia was all along expected, until all at once came a little improvement. She had repeated attacks of pain in the heart and suffocation. She wanted to be rubbed over the chest continuously, for she said it relieved her, and she was rubbed for over four hours constantly until her skin was sore, and I gave her several doses of belladonna. She was improving fast, but still had no power to move her hands and feet, the former being still clinched, and there was no sensation in the fingers. We began then rubbing her hands and feet, and in a few minutes she was again able to move them. Five hours after she had taken the poison I left her feeling quite well, but greatly exhausted. She had not vomited a particle, but was well purged. Next morning she had vomitings, headache, and a slight fever, and still had slight numbness in the fingers, but on the following day she was up and around, feeling as well as ever.

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EXOTHYREOPEXY.

At a recent meeting of the Lyons *Société nationale de médecine*, the proceedings of which are reported in *Lyon médical* for March 12th, M. Poncet presented a lad, fifteen years old, on whom his assistant, M. Jaboulay, had operated for goitre by a new procedure.\* In his enthusiasm, M. Poncet proposed to call the procedure Jaboulay's operation, although he mentioned several other names, including exothyreopexy and supraclavicular, or suprasternal, luxation of the thyroid gland. It seems that the patient came from Chambost, in the department of the Rhône, and that, although his family was not goitrous, there was goitre in his canton. For some months his disease had been grave, giving rise to suffocative attacks, persistent dyspnoea, an almost continuous feeling of anxiety, tachycardia, and palpitation. M. Poncet stated that the goitres met with in the region in which the patient belonged were usually (four times out of five) encysted and enucleable, but that in this instance the disease was absolutely parenchymatous, so that its enucleation was impossible, and removal of the entire thyroid was avoided on account of the excessive vascularity of the goitre.

What was really done—and what appears to have been determined upon beforehand by M. Jaboulay, in case matters should turn out as they did—was to free the thyroid from surrounding parts as far as practicable and bring it forward through the external wound, which extended down to the suprasternal notch, to a situation where it gradually underwent atrophy, partly, perhaps, as the result of constriction of its pedicle by the lips of the wound in the process of healing, and partly by its connection with its normal surroundings being restricted. It is plain that with strict antiseptic precautions such a plan of treatment can be carried out without great danger from resorption of septic matter. As to what would ultimately become of the shrunken remains of the tumor it is not easy to judge, for M. Poncet's report was made at a time when only two months had elapsed since the operation.

THE CURATIVE SERUM OF TETANUS.

THE Berlin correspondent of the *Medical Press and Circular* for February 8th notices the last publication by Behring on tetanus, in which he announces that an immunizing serum, prepared under his direction, may be procured from Meinhardt, of Berlin. A case of cure by the serum is reported in the same publication. This case was one of traumatic tetanus that was treated by injections of curative blood serum from the horse,

250 grammes of a solution of 1-to-1,000,000 intensity having been administered in five injections. The author states that, as the symptoms were progressing and aggressive during the day before the treatment was begun, and as these symptoms first became stationary and next rapidly subsided under treatment, it was held to be proper that the injections should be credited with the favorable outcome of the case.

He gives it as his opinion that the effects of tetanus serum on man and on the lower animals do not vary greatly in respect to the ease or difficulty in obtaining results. For example, if the serum is to exert a curative effect upon the human patient having tetanus, the dose must be proportioned to the differences in weight between man and the test animals, such as the mouse, etc. Furthermore, it is evident that the curative potency of this serum is in constant proportion to its immunizing power; that the serum is best by far employed for the latter object; that when it is used for curative purposes the varying intensity of the disease must be taken into the account; also that the differences growing out of the stages of the disease make the determination of the value of the treatment very difficult at the outset of its employment. Roughly estimated, in regard to man, if one part of the remedy is efficient for prophylactic ends, a thousand parts at least will be necessary to a curative effect, and if the disease is somewhat advanced a still higher proportion will be indicated. The author hopes and expects to soon produce a serum intensified to a degree tenfold higher than that now possessed by him, and with this he believes that he will be enabled to "reduce the mortality of tetanus from eighty or eighty-five per cent. to five or ten per cent." He emphasizes the point that this sort of treatment differs from others that have been proposed in the fact that this tetanus serum contains a protective substance already prepared for introduction into the circulation and that when the presence of this substance in the urine of a subject of the disease can be ascertained it is to be regarded as a favorable sign of the curative action of the treatment.

"TRUE ISOPATHY."

In the *American Therapist* for February there is an interesting editorial on Isopathy, in which the writer calls attention to the fact that the practice originated at about the dawn of history, and met with favor at the hands of Nicander, Zennocrates, Galen, Serapion, Paulus Ægineta, Dioscorides, and Paracelsus. It is stated that precisely the same doctrine that is now advanced by scientific men was promulgated just sixty years ago by Herr Lux, a veterinary surgeon of Leipsic, namely: "All infectious diseases contain in their infectious matters the remedies capable of curing themselves." Briefly stated, isopathy taught that any disease would be cured by its own morbid products, and its followers adopted the motto "*Æqualia equalibus*," to distinguish their practice from homœopathy (*similia similibus*) on the one hand, and allopathy (*contraria contrariis*) on the other.

Some of the remedies then introduced were morbilline.

scarlatine, varioline, syphiline, sycosine, psorine, anthracine, hydrophobine, etc., this crude practice running in lines parallel to that subsequently suggested by Koch, Pasteur, and others, that is based on the discovery of the causative agent of an infectious disease and the existence of its ptomainic products.

The editorial refers to a recent article by Dr. William A. Hammond, published in this journal, and states that the book to which Dr. Hammond therein referred was written by Surgeon Hermann in 1848, and was entitled *True Isopathy; or, on the Employment of Organs of Healthy Animals as Remedies in Diseases of the Same Organs in the Human Subject*. For example, "hepatic" was a tincture prepared from the liver of the fox or dog, and employed in the treatment of various liver diseases and hydrophobia; "lienine," a tincture prepared from the dog's spleen, was used in treating enlargement of the spleen; "renine," a tincture prepared from a healthy kidney, afforded relief from spasmodic retention of urine; "pulmonine" was used in treating pneumonia and hæmoptysis; and "dentine" was used in treating toothache.

Whether this almost forgotten practice will be rescued from the limbo of oblivion and serve for the erection of a permanent and worthy therapeutical structure, as suggested by Dr. Hammond, remains to be seen. Even if these things happen, the practice will not be "true isopathy."

## MINOR PARAGRAPHS.

### BROMOFORM IN THE TREATMENT OF WHOOPING-COUGH.

In the February number of the *Practitioner* Mr. F. W. Burton-Fanning, of the Jenny Lind Infirmary, Norwich, reports his experience in the treatment of thirty cases of whooping-cough with bromoform. Except for one death—that of an infant whose whooping-cough was complicated with capillary bronchitis, whose condition was desperate when the treatment was begun, and who retained only one dose of the medicine—the results are said to have been uniformly gratifying. The dosage of bromoform recommended is as follows: For children under a year old, half a minim, three times a day; for those from a year to three years old, a minim; and for those from three to six years old, two minims. If necessary, these doses may safely be increased gradually until they are doubled. The mixture used by Dr. Burton-Fanning consisted of a minim of bromoform, half a drachm of compound powder of tragacanth, half a fluidrachm of syrup, and water enough to make half a fluidounce. Bromoform, which should be colorless, becomes brown on exposure to light; then it should on no account be used. The mixture mentioned should be thoroughly shaken before a dose is given.

### MEASURES FOR CHECKING THE VOMITING EXCITED BY ANÆSTHETICS.

The *Union médicale* for February 28th has a short article on this subject, relating more particularly to cases in which chloroform is the anæsthetic employed. The first measure mentioned for arresting chloroform vomiting is to increase the anæsthesia to the point of abolishing all reflex sensibility. This, the writer says, does not always succeed; he might have added that on other grounds it was not to be commended. Another plan, proposed by Joos, of Winterthur, but said by the writer to have

been borrowed from Leloir, of Lille, who used it in cases of intractable hicough, is that of compression of one or both of the phrenic nerves by means of the thumb placed immediately above the sternal end of the clavicle. The compression should be kept up for several minutes after the vomiting has ceased. If it does not succeed, recourse may be had to the very simple measure of applying a compress wet with very cold water to the neck. The compress should be changed as soon as it begins to get warm. The writer has found it very serviceable, and he supposes that it, too, acts on the phrenic nerves. The area of refrigeration is so small that there is no danger of chilling the patient.

### STRONTIUM LACTATE IN PUERPERAL ECLAMPSIA.

In recent French journals several instances have been mentioned of the favorable action of strontium in kidney troubles. In the *Gazette médicale de Nantes* for March 12th Dr. Méuager gives an account of a case of puerperal convulsions in the eighth month of gestation in which the lactate exerted a very evident diuretic effect and may have affected the disease favorably. It was given in doses of fifteen grains, in a cupful of milk, night and day, on account of pronounced albuminuria with œdema. Abundant diuresis was produced, together with subsidence of the dropsy. Nevertheless, violent convulsions occurred subsequently, but they were treated with leeches to the legs and enemata of chloral, and they gradually yielded. The use of strontium lactate was then resumed, and again its diuretic action was prompt and decided. In five or six weeks after the eclamptic attack the patient was delivered of a four-pound child, and at the end of seven weeks more both mother and child were seen by the author and found to be in good condition.

### A REMARKABLE CASE OF CARBOLIC-ACID POISONING.

In the *Bulletins de la Société anatomique de Paris*, 1893, No. 2, there is a brief account, by M. Jayle, of the case of a girl, eleven years and a half old, who, having a little excoriation of the right index finger, wrapped the finger in a piece of cloth moistened with a few drops of a mixture of nine parts of carbolic acid and one part of glycerin. On the following day the finger was of a grayish hue, and subsequently it became black, but without pain. The finger was amputated at the metacarpophalangeal joint, and not only the soft parts, but also the phalanges, were found to be black. The child's general health was good and an examination of the urine showed nothing abnormal. These facts, together with the small amount of the drug used, make the poisoning difficult of explanation.

### PURULENT OTITIS MEDIA CAUSED BY A PINCH OF SNUFF.

In the March number of the *Annales des maladies de l'oreille*, etc., there is an account condensed from an article by Dr. Haug, published in the *Archiv für Ohrenheilkunde*, xxxii, 2, of the case of a young man who, although not in the habit of taking snuff, took a pinch. Being seized with sneezing, he sought to overcome it by closing his mouth and lowering his head. He was attacked with otitis media, from which he recovered after paracentesis. In the purulent discharge the author found some little grains of tobacco which had been forced into the tympanum and caused the inflammation. A similar case is said to have been reported by Kessel.

### WELANDER'S ABORTIVE TREATMENT OF BUBO.

In the *Montpellier médical*, 1893, No. 7, Dr. Brousse gives his experience with this treatment in five cases, in only one of



which he was successful. In a summary of Dr. Brousse's article given in the *Union médicale* for March 4th the method is described as having the prevention of supuration for its object, and as consisting in injecting a cubic centimetre of a one-per-cent. solution of benzoate of mercury into the bubo and then employing compression. Welander and Letnik are cited as having succeeded in ninety per cent. of cases in which supuration had not already begun. Dr. Brousse finds that the injection always produces a well-marked local and especially a systemic reaction, the latter characterized by headache, loss of appetite, malaise, and rise of temperature. In some of his cases there was intense fever lasting two or three days. All things considered, the treatment seems not altogether free from danger.

#### A DEATH ATTRIBUTED TO ETHER.

The recent death of a well-known citizen of New York, Colonel Elliott F. Shepard, with symptoms coming on suddenly during the administration of ether as an anæsthetic and followed by the fatal termination in the course of two or three hours, has been made the occasion of a good deal of gossip and newspaper comment that, we think, may be called unnecessarily if not unjustifiably censorious toward the physicians connected with the case. It is to be feared, too, that the public will become to a certain extent and for some considerable length of time prejudiced against the use of ether. This, as well as the unfavorable comment to which we have alluded, might, it seems to us, have been prevented in a measure, or at least the means of combating it furnished, had the coroner insisted on a post-mortem examination.

#### MAMMARY HYPERTROPHY IN A BOY.

The *Wiener klinische Wochenschrift* for March 16th contains the report of a meeting of the Imperio-royal Society of Physicians of Vienna at which Dr. von Eiselsberg related the case of a boy, fourteen years old, in whom hypertrophy of the right breast had begun about a year before. The progress of the overgrowth had been rather rapid at first and the size of the breast had since remained stationary. A curious circumstance was that the boy's brother, a few years older, had been affected with a swelling of the left breast, most pronounced about the nipple, shortly after the inception of the first boy's hypertrophy, but it had subsided in the course of a few months.

#### CHLORAL AND CAMPHOR IN THE TREATMENT OF CHANCROID.

In the March number of the *Annales des maladies des organes génito-urinaires* there is a summary of an article by Dr. E. Cavazzani, published in the *Giornale italiano delle malattie veneree e della pelle*, on the treatment of soft chancre with a mixture of five parts of chloral hydrate, three of camphor, and twenty-five of glycerin. The author reports twenty-six cases treated with this application in which a cure was attained in from two to eighteen days. It is said that the secretion diminishes rapidly and soon ceases altogether, that the local inflammation subsides notably, that the epithelium is regenerated speedily, and that suppurating buboes are a rarity.

#### AORTITIS AS A CAUSE OF SUDDEN DEATH.

In the *Gazette médicale de Paris* for February 25th there is an interesting critical review of the subject of aortitis, founded largely on the teachings of Potain and Huchard and especially

on a recent work by Bureau. The causes of aortitis are obscure, especially in chronic cases. The acute form may be due to infectious diseases, such as typhoid fever and small-pox, or to rheumatism. Among its symptoms angina pectoris is the most striking, and by it, by rupture of the aorta, or by asystole aortitis often proves the cause of sudden death.

#### EXCISION OF THE UMBILICUS IN LAPAROTOMY.

In the *Province médicale* for March 11th Dr. R. Condamin advocates anew the procedure of excising the navel in cases of laparotomy in which a median incision extends above it. He thinks the advantages of omphalectomy are that it does away with the cutaneous infundibulum of the navel, always difficult to disinfect; that it shortens the process of suturing by simplifying it; and that, by allowing of the same method of suturing in the umbilical portion of the incision as elsewhere, it provides an almost absolute safeguard against subsequent eventration.

#### PUBIC SYMPHYSEOTOMY.

On Friday, March 24th, at midnight, in a tenement house, Dr. J. Clifton Edgar, of the Lying-in Hospital in Broome Street, performed this operation in the presence of the staff of that institution. The patient was a primipara with a flattened pelvis. She had been in labor for two days, and her family demanded the sacrifice of the child. This Dr. Edgar refused to accede to, and by means of symphyseotomy he was able to deliver her of a living child. On the third day after the operation, both mother and child were reported to be doing well.

#### PRENATAL MEASLES.

At a recent meeting of the Obstetrical Society of Edinburgh, reported in the *Edinburgh Medical Journal* for March, a case was related as having occurred in the practice of Dr. T. B. Darling, in which a woman was attacked with measles when she was at the close of the fifth month of gestation. When the eruption was beginning to fade she gave birth to a fetus on which spots of the eruption were to be seen, especially on the face, back, and legs.

#### NEW YORKERS AND CURRENT MEDICAL LITERATURE.

For a number of years it has seemed to us that the contributions of New York practitioners to current medical literature were growing more and more numerous in proportion to those emanating from other American physicians. A striking example is to be found in the April number of the *American Journal of the Medical Sciences*, published in Philadelphia. The number contains seven original communications, five of which are by New York authors.

#### EPISTAXIS BY WAY OF THE LACRYMAL PUNCTA.

At a recent meeting of the Paris *Société de biologie*, reported in the *Progrès médical* for March 11th, Dr. Malbec gave an account of a case of nasal hemorrhage in which, after plugging of the nares, the flow of blood continued from the puncta lacrimalia. He added that such an occurrence, although it had rarely been observed, showed the inefficiency of the various valves that had been described as existing in the lacrymal passages.

#### PHOTOGRAPHY OF THE INTERIOR OF THE BLADDER.

At a recent meeting of the *Berliner medizinische Gesellschaft*, reported in the *Deutsche Medizinische Zeitung*, Herr Nitze

announced that he had succeeded in photographing the interior of the bladder through the cystoscope. Such photographs showing normal and pathological conditions are said to portray the differences very strikingly.

#### BETA NAPHTHOL AND CAMPHOR IN THE TREATMENT OF TUBERCULOUS GLANDS.

In the *Journal de médecine de Bordeaux* Dr. Courtin has reported good results in the treatment of tuberculous lymphadenitis by injections of a mixture of one part each of betanaphthol and camphor and four parts of 60° alcohol. The pain caused is slight, and it disappears in a few minutes. There is moderate swelling for two or three days. Dr. Courtin's article is summarized in the *Monatshefte für praktische Dermatologie* for March 15th.

#### THE PERSIAN DRUG "MARV."

In the *Pharmaceutical Journal and Transactions* for March 11th Dr. O. Stapf states that this name (written also *nerve* and *marve*) is perhaps an Arabic form of the *pápop* of Dioscorides, and that it is applied in the Persian bazaars to the nutlets of various species of *Salvia*.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 28, 1893:

DISEASES.	Week ending Mar. 21.		Week ending Mar. 28.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	10	5	5	2
Typhoid fever.....	21	8	17	6
Scarlet fever.....	161	12	172	13
Cerebro-spinal meningitis.....	12	5	15	9
Measles.....	111	7	96	4
Diphtheria.....	97	50	115	41
Small-pox.....	6	2	9	5

**The Medical Association of Georgia** will hold its forty-fourth annual meeting in Americus, on April 19th, 20th, and 21st, under the presidency of Dr. A. A. Smith, of Hawkinsville. Besides the president's annual address, the preliminary programme announces the following papers: Woman's Relations to the Practice of Medicine (Orator's Address), by Dr. Frank Ridley, of La Grange; Diffuse Traumatic Aneurysm of the Anterior Tibial Artery—Ligation of the Femoral, by Dr. F. R. Calhoun, of Cartersville; Multiple Neuritis, "Alcoholic," by Dr. Mark H. O'Daniel, of Macon; Salpingitis: its Pathology and Treatment, by Dr. R. R. Kime, of Atlanta; Puerperal Eclampsia, with Special Reference to its Cause and Treatment, by Dr. A. C. Davidson, of Sharon; Asphyxia Neophytorum, by Dr. R. J. Nunn, of Savannah; Stab of the Stomach—the Organ protruding through the Abdominal Wall—Laparotomy—Recovery, by Dr. J. W. Griggs, of West Point; Operation for Fistula in Ano by Ligation, by Dr. John J. Hill, of Washington; The Contagiousness of Consumption, by Dr. J. G. Hopkins, of Thomasville; The Disappointment of the Menopause, by Dr. J. C. Avery, of Atlanta; Headache *versus* Glaucoma, by Dr. W. T. Bullard, of Columbus; "Shot-gun" Prescriptions, by Dr. C. C. Hart, of Cross Keys; A Review of Dr. Senn's Views on Elastic Constructions, by Dr. W. H. Elliot, of Savannah; The Practice of Medicine in Georgia, by Dr. A. C. Blain, of Macon; Hernia, by Dr. W. F. Westmoreland, of Atlanta; Antipretics (translated from the German of Cantani), by Dr. S. B. Poland, of Griswoldville; Science in Medicine and Surgery, by Dr. J. McFadden Gaston, of Atlanta; Ophthalmia of the New-born, by Dr. S. Latimer Phillips, of Savannah; Periproctitis with an Abscess, and Report of a Case, by Dr. M. L. Currie, of Mt. Vernon; The Necessity for a Medical Examining Board in Georgia, by Dr. L. B. Grandy, of

Atlanta; Impure and Pure Mineral Waters, by Dr. T. S. Hopkins, of Thomasville; State and Municipal Hygiene, by Dr. J. C. Avery, of Atlanta; A Rare Case in Obstetric Practice, by Dr. O. H. Buford, of Cartersville; Sterility in the Male, by Dr. C. Evans Johnson, of Atlanta; Conditions indicating Abdominal Operations, and Report of Cases, by Dr. Frank M. Ridley, of La Grange; Pneumonia, by Dr. O. T. Kenyon, of Weston; The Function and Nutritive Value of Foods, by Dr. Louis H. Jones, of Atlanta; Stone in the Bladder, with Report of Cases, by Dr. F. W. McRae, of Atlanta; The Non-surgical Treatment of Typhilitis, by Dr. E. H. Richardson, of Atlanta; Drainage in Pelvic Surgery, by Dr. G. H. Noble, of Atlanta; Specialism in Medicine, by Dr. A. S. Hawes, of Atlanta; Partial Tenotomy a Radical Cure for Heterophthalmia, by Dr. C. H. Peete, of Macon; The Pathology of Gynecic Neuroses, by Dr. Ross P. Cox, of Rome; Persistent Remittent or So-called Typhomalarial Fever, with Report of Cases, by Dr. W. P. Williams, of Blackshear; Some Remarks on Aseptic Surgery, with Exhibition of Sterilizing Methods, by Dr. T. M. McIntosh, of Thomasville; The Mechanical Treatment of Some Skin Anomalies, by Dr. M. B. Hutchins, of Atlanta; and Three Women [who refused Laparotomy, by Dr. H. McHatton, of Macon.

**The Abuse of Tobacco.**—The *Deutsche Medizinisch-Zeitung* states that the *Société contre l'abus du tabac* has established two prizes: 1. One of 200 francs and a medal for an essay comprising at least four unpublished accounts of cases of disease due exclusively to the abuse of tobacco. 2. One of 100 francs for an effective and practicable means of preventing the ill effects of tobacco in persons who can not renounce the habit of immoderate smoking. Further information may be had from the president of the society, 203, rue Saint-Beuve, Paris.

**The Arizona Medical Association.**—At the annual meeting, held on February 27th and 28th and March 1st, we learn from the *Journal of the American Medical Association*, officers for the ensuing year were elected as follows: President, Dr. H. A. Hughes; vice-presidents, Dr. R. C. Dryden, Dr. C. H. Jones, and Dr. A. H. Hoefler; secretary, Dr. L. D. Dameron; treasurer, Dr. W. T. Barry.

**The French Society of Otology and Laryngology**, it is announced in the *Archives générales de médecine*, will hold its annual meeting on the 12th of May. The subjects of discussion are: The Treatment of Otorrhoea, The Treatment of Laryngeal Tuberculosis, and Affections of the Cavities Accessory to the Nose.

**The Buffalo Academy of Medicine.**—At the next meeting of the Surgical Section, on Tuesday, the 4th inst., Dr. Herman Mynter is to read a paper on Fractures and Competent Surgical Treatment, and Dr. William L. Marcy one on The Legal Aspects and Responsibilities [of Fractures?].

**The University of Dorpat.**—We learn by the *Wiener klinische Wochenschrift* that the Russification of the name of the town to Jurjew involves the withdrawal of the German professors. The director of the pathological institute, Professor Thoma, offered his resignation a short time since.

**The American Climatological Association** will hold its tenth annual meeting in Philadelphia on Thursday, Friday, and Saturday, May 25th, 26th, and 27th, under the presidency of Dr. R. G. Curtin, of Philadelphia.

**The College of Physicians of Philadelphia.**—The *Deutsche Medizinisch-Zeitung* announces that Dr. von Jaksch, of Prague, has been made an associate fellow.

**The State Lunatic Hospital at Poughkeepsie.**—It is announced that Dr. Cleveland has resigned the office of superintendent and that Dr. Charles W. Pilgrim has been appointed to succeed him.

**Army Intelligence.**—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 12 to March 18, 1893:

HAPPESETT, JOHN C. G., Major and Surgeon. The extension of leave of absence granted on surgeon's certificate of disability is further extended three months on account of sickness.

WILLCOX, CHARLES, First Lieutenant and Assistant Surgeon. The leave of absence granted is extended one month.

TAYLOR, BLAIR D., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect when his services can be spared by the post commander.

JARVIS, N. S., Captain and Assistant Surgeon, Fort Apache, Arizona, is granted leave of absence for one month.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 25, 1893:*

FLINT, J. M., Surgeon. Detached from the U. S. Steamer Miantonomoh and granted one month's leave of absence.

DICKINSON, DWIGHT, Surgeon. Ordered to the U. S. Steamer Miantonomoh.

WAGGENER, J. R., Surgeon. Ordered to the Norfolk Navy Yard.

DRENNAN, M. C., Surgeon. Detached from the Navy Yard, Norfolk, and ordered to the U. S. Receiving-ship Vermont.

BAHIN, H. J., Surgeon. Detached from the U. S. Receiving-ship Vermont and to wait orders.

RUSH, C. W., Passed Assistant Surgeon. Sick leave of absence extended three months.

#### Society Meetings for the Coming Week:

MONDAY, April 3d: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association (annual); Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society (annual).

TUESDAY, April 4th: New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Academy of Medicine (Surgical Section); Buffalo Medical and Surgical Association (annual); Ogdensburg Medical Association; Medical Societies of the Counties of Broome (quarterly) and Niagara (quarterly—Lockport), N. Y.; Essex (annual—Newark), Hudson (Jersey City), and Union (annual—Elizabeth), N. J., County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Chittenden, Vt., County Medical Society; Baltimore Academy of Medicine.

WEDNESDAY, April 5th: Society of the Alumni of Bellevue Hospital; Society of the Alumni of Charity Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association; Philadelphia County Medical Society.

THURSDAY, April 6th: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Washington, Vt., County Medical Society.

FRIDAY, April 7th: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, April 8th: Obstetrical Society of Boston (private).

## Letters to the Editor.

### MAGGOTS IN THE NOSE.

GALVESTON, TEXAS, March 18, 1893.

To the Editor of the *New York Medical Journal*:

SIR: The article of Major James P. Kimball, entitled *Maggots in the Nose successfully treated by Injections of Chloro-*

form, published in the *Journal* of March 11th, was particularly interesting to me from the fact that I have had some experience in the observation and treatment of this comparatively rare disease.

During a practice of eight years in the town of San Buenaventura, State of Coahuila, Mexico, I had opportunity of observing four well marked cases of maggots in the nose, precisely of the same nature as that of the one so excellently described by Dr. Kimball. Three of my cases occurred in women aged eighteen, twenty-two, and forty-one years, respectively, and the fourth in a young man twenty-three years old.

The symptoms manifested in such cases were those of a slight rise of the bodily temperature, pain in the forehead and in the orbital region, at first, followed, in the course of from twenty-four to forty-eight hours, by the bloody-serous discharge from the nostrils, accompanied with "pain at the root of the nose and over the frontal region." An internal examination of the nose made the diagnosis an easy one.

I tried all the remedies mentioned by Kimball, with the exception of chloroform, and the only one that gave satisfactory results was calomel. All my four patients recovered promptly and without exhibiting any untoward after-effects. The calomel was employed solely by insufflations.

The maggots, though not killed apparently by this remedy, were certainly *dazed*, as it were, by the drug, and were all expelled in less than twenty-four hours from the beginning of the treatment. In one of the cases—that of the elderly lady—I counted three hundred and eighty-eight maggots! The drug was insufflated in all instances three or four times a day *ad libitum*.

From the careful report of Dr. Kimball I am inclined to believe in the efficacy of chloroform administered in the manner described by him and suggested by other authorities; but I am also convinced by personal experience that calomel is likewise an excellent remedy in the disease under consideration, not inferior to the anæsthetic, and possessing, besides, the advantages of being cheap, non-poisonous, and easily applied as described.

Another point. I can not agree with Kimball that the "fly deposits its larvæ only on the unsound mucous membrane." Of my three patients, for instance, only one (the elderly lady) had been a previous sufferer from nasal catarrh of several years' standing. The three others had been absolutely free from any local or constitutional taint so far as a critical examination could reveal.

The beneficial influence of calomel in this disorder can not be doubted. I may add that this seems to be the experience of other practitioners residing in other parts of the State mentioned.

I may also state that the chronic case referred to was apparently much relieved of the old affection after the calomel treatment; but I can not positively affirm that this drug exercised in this instance the good effects noticed in the catarrhal disease.

DAVID CERNA, M. D., Ph. D.

March 15, 1893.

To the Editor of the *New York Medical Journal*:

SIR: In connection with the paper in your issue of March 11th on the treatment of maggots in the nose, I beg to say that in such cases the administration by the mouth of sulphate of quinine in five-grain doses every second hour until perhaps thirty grains shall have been taken was a routine treatment with me during a tour of service in Texas had some years ago. Notes of my cases were not taken, but the good results from quinine seemed to be not accidental in the expulsion of the larvæ.

U. S. A.



## NITROGLYCERIN.

SKANEATELES, N. Y., March 27, 1893.

To the Editor of the New York Medical Journal:

SIR: In your editorial on Nitroglycerin in the last issue of the *Journal* you state that "two minims and a half of the one-per-cent. solution given to a lady for neuralgia have been known to produce faintness, pallor, stertorous breathing, and unconsciousness for a few minutes." I produced syncope with lividity and stertorous breathing in a young woman to whom I gave a one one-hundredth-grain tablet for brachial neuralgia. The tablet was placed upon the tongue, and the syncope occurred almost before the tablet was dissolved. The neuralgia was cured. You state also that "Hale, in his text-book on therapeutics, says that no more than a fiftieth of a grain should ever be used, but those who habitually employ the drug find that such a dose is rarely sufficient to produce its effects."

I "habitually employ" the drug for neuralgia, as a diuretic, in asthma, in emphysema, and in other affections. During the past year I have used it very frequently, yet scarcely find it possible to give as much as one one-hundredth of a grain without producing its physiological effect; generally, in fact, I find it necessary to stop short of that dose.

I use tablet triturates, dissolving them on the tongue, and giving one four-hundredth of a grain doses at intervals of five minutes until I find the amount necessary to produce the physiological effect. Two of the worst cases of neuralgia I have met with (one supra-orbital, the other intercostal) I cured within fifteen minutes with a single hundredth-of-a-grain tablet used in this way—i. e., in divided doses. Marked physiological effect was produced in both cases. I can recall only two patients who seemed tolerant of larger doses. The one could take one fiftieth of a grain; the other, contrary to my orders, took at one dose five one-hundredth-of-a-grain tablets without any perceptible physiological effects. It has occurred to me that the use of divided doses and the administration on the tongue may account for the difference between my results and those quoted in your editorial. I should be glad if others would publish their results in your columns, because I am sure the average patient I meet with can not stand nearly the doses your article recommends. Is it possible that the smaller dose can be more effective than the larger? GEORGE EDWARD CLARK, M. D.

## NEWSPAPER MEDICINE.

NEW YORK, March 26, 1893.

To the Editor of the New York Medical Journal:

SIR: It is gratifying to find the growing interest shown by the daily press in questions of scientific moment, especially when medicine is the theme. I therefore read with some care the accounts of the illness of little Miss Marthena Harrison, the daughter of Mr. Russell Harrison, which appeared in the *New York Times* of to-day. After describing the child's illness, which was scarlet fever, and referring to the nervous prostration, "which in one so young is a dangerous thing," it says:

"Dr. William J. Morton, of this city, a specialist of note, was communicated with. He suggested electricity as the most feasible and energetic means of effecting a cure, and young Miss Harrison was accordingly brought here. The treatment consists of subjecting the patient to what is known as the static bath. The static current is a form of electricity not in very general use. Only specialists use it, for it possesses a power very great in proportion to that developed in the ordinary way. The little girl is satisfactorily recovering her nervous equilibrium, and as soon as she is entirely well will be taken to her Western home."

Comment seems unnecessary.

SAN GRADO.

## TUBERCULOUS BONE DISEASE.

43 MORTIMER STREET, ROCHESTER, N. Y., March 20, 1893.

To the Editor of the New York Medical Journal:

SIR: In your report of the proceedings of the Medical Society of the State of New York, published in the issue of March 11th, the remarks I made are so distorted that I must request a correction.

Expectant treatment in tuberculous bone disease was *not* advocated. I distinctly stated that pure expectancy was never justifiable; conservatism, however, was advisable in many cases.

At the close of my remarks I presented three questions for discussion. According to the official stenographer's notes, of which I have a transcript, they were substantially as follows: Does operative interference destroy the centers of ossification and produce or increase shortening in certain cases? Is shortening a more serious matter than the risk of destruction of the joint? What is the probability of joint infection without operation, and does operative interference prevent general infection?

By comparing these questions with the ones quoted in your report, you will observe that they differ very materially in substance and form.

LOUIS A. WEIGEL, M. D.

\*\* In so far as the allusion to expectant treatment is concerned, our correspondent has misinterpreted the report we published of his remarks.

## Book Notices.

*Lehrbuch der Hebammenkunst.* Von Dr. BERNHARD SIGMUND SCHULTZE, Geheimhofrath öff. orb. Professor der Geburtshilfe, etc. Zehente Auflage. Mit 98 Holzschnitten. Leipzig: Wilhelm Engelmann, 1891. Pp. xxiii to 380.

The tenth edition of this work seems not only to have exhausted the author's capacity for writing prefaces to it, but also the critical faculty on the part of its readers. The material contained in it is much more extensive than is usual in such works, as is also the author's belief in the midwife's understanding. To a man living in a country where education is general and the brain cultivated, Schultze's paternal manner of addressing his midwives as if the faint glimmerings of their intelligence might be extinguished if too much light were thrown suddenly upon it, seems somewhat droll and decidedly out of place. A visit to the German hospitals, however, would soon convert one from this New-World belief and incline one to wonder at Schultze's faith in the midwife's capacity and to understand the necessity of the minuteness of his instructions to her. As a rule, the midwives are countrywomen totally untrained, and for all acquired knowledge they possess a bundle of traditional lore and curious prejudice. Inasmuch as the instruction they receive at the hospital is their all and is without a foundation of general knowledge, there is danger of their enhancing its relative value to the detriment of their patients. Schultze, therefore, to guard against a possible difficulty of this nature, cautions them at every turn as to the limits of their capacity, of their requirements, and of their responsibility, imposing upon them constantly the necessity of calling in the *accoucheur* in all cases beyond their ascertained skill. That they may properly learn to judge of the importance of what they have before them, numerous diagrams of normal and pathological conditions are

placed at their disposal and the process of childbirth is illustrated at all its periods.

The various manœuvres devolving upon midwives are clearly described, so that the didactic instruction given them, combined with their practical hospital training, enables them to master any of the ordinary possibilities.

## Reports on the Progress of Medicine.

### OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

(Continued from page 313.)

**Glaucoma after Dissection of Secondary Cataract, and its Successful Treatment by Iridectomy.**—Knapp (*Arch. of Ophthalm.*, xxi, 2) reports ten cases of this unusual complication. He considers them as examples of experimental glaucoma in aphakial eyes. Some of the cases had non-inflammatory posterior synechiæ where the capsule had been opened. There was no incarceration of iris in the corneal section. Thinking that his method of operating in opening the capsule may have favored the outbreak of glaucoma, he has returned to the T-shaped opening of the capsule. Some of these cases of traumatic glaucoma may recover without operation, but an iridectomy always cures them. In all the cases normal vitreous, which partially or totally filled the anterior chamber, flowed out. All the cases bore the same stamp—pain, swelling of lids and conjunctiva, dullness of cornea, bulging of the periphery of the iris, increase of tension, impairment of sight, and general systemic disturbance.

**Optic-nerve Atrophy in a Child following a Fall on the Head, with Severe Cerebral Symptoms.**—Kohn (*Arch. of Ophthalm.*, xxi, 3) reports the case of a child who had fallen over the balustrade, a height of five steps from the floor, and had struck the carpeted floor on the left side of his head, in the parieto-temporal region. Kohn saw him the same day, and found his pulse and respiration normal, pupils equally dilated, and irides irresponsive—almost complete coma. There was little or no reflex action in the extremities. Diagnosis made of hæmorrhage into the brain from a fracture of the inner table of the skull on the right side by contre-coup. Calomel and jalap were administered in large doses, and the next morning, after thorough purging, consciousness returned, the boy answered questions, and rapidly recovered. After a few days it was found on examination that he was blind in the left eye. The ophthalmoscopic examination was negative. There was a depressed fracture of the skull at the junction of the left external angular process of the frontal bone with the frontal process of the malar bone. This depressed fracture must have resulted in a hæmorrhage on the anterior surface of the frontal lobe, because the coma came on slowly. The crushing in of the skull at this point must have produced such a narrowing of the optic foramen that the nerve was completely compressed or cut through. The hæmorrhage could not have been extensive because the recovery without permanent paralysis was too rapid. One year later there was marked atrophy of the optic nerve.

**On Synergetic Ocular Movements.**—O. Ball (*Arch. of Ophthalm.*, xxi, 3) thinks that to doubt the existence of cortical centers for the movements of the eyes would necessarily lead one to doubt the whole doctrine of cortical localization. The doctrine of cortical centers for volitional movements of the eyes is just as certainly founded on physiological, pathologico-anatomical,

and clinical observations as those for any other volitional movements. The situation of the centers for the volitional eye movements is most probably at the base of the first and second frontal gyri. It is probable that all the centers for each eye lie on the opposite side of the brain. This does not, however, involve the independent action on each side. The predominant influence of the visual impressions is to counteract unsymmetrical movements as being repugnant to binocular vision. From the mode of the movements it must be inferred that impulses are not forwarded to each muscle separately, but to sets of muscles acting synergetically. Both experiments and clinical facts argue in favor of the theory that both cortical centers for the muscles acting synergetically, and the fibers leading the synergetic impulses, are in close local relationship. Mott and Schaefer have produced conjugated deviations up and down, as well as adduction and abduction, by irritating at the same time corresponding places of the cortex. They have found in the motor region three zones: 1. The uppermost, governing the movements downward. 2. An intermediate zone for movements to the opposite side. 3. A lower zone for the movements upward and to the opposite side.

In the congenital and acquired cases of palsy of the different muscles we have a chain of symptoms which can be explained only by assuming an affection of central paths through which the impulses are led to sets of muscles acting synergetically. In congenital cases we might assume a nuclear lesion. The defect in the nuclei being intercalary ganglia, must, however, be explained as secondary, depending on a defect of the cerebral centers. In acquired cases a nuclear affection may be excluded, as it would be very improbable to suppose that exactly the corresponding points of the nuclei on both sides could be affected and the rest remain sound. The etiology of these palsies can only be explained by supposing that the centers for the muscles acting synergetically and the fibers from the center lie in a close local relation. We must infer that impulses to synergetic movements are transmitted through separate fibers within the cerebrum, both from the character of the physiological movements and from the above-described palsies caused by affections beyond the nuclei. We must also conclude that the fibers through which impulses to movements are conducted are almost wholly developed at the time of birth, from the fact that children but a few days old move their eyes symmetrically.

**The Pathology of Circumferential Dermoid Cysts.**—Mitvalsky (*Arch. of Ophthalm.*, xxi, 3) considers that the physiological structure of dermoid cysts varies within wide limits. In all the varieties the wall is composed of a connective-tissue corium and an overlying layer of epidermis, the variation consisting in the presence or absence of papillæ, muscle, and the various annexa of the skin. The variety showing hairs and glands is the most common. In most cysts the epidermis resembles that of the external skin, though there may be only a single layer. The corium also presents variations, the papillæ being rare and often being entirely absent. The nearer the cyst is to fetal life, the smaller it is, and the more regular its structure and the distribution of the annexa. The first enlargement of the cyst occurs with the distention of its lumen by the secretion from the sebaceous and sweat glands. The distention of the cyst wall may be uniform and the annexa distributed regularly over all portions of the cyst wall, or some parts of the wall regain their original structure. As regards the contents of the cysts, there are no dermoid cysts without atheromatous material and epithelium. Dermoid cysts are congenital; atheroma is acquired and occurs mostly in adult life. The former begins with the dipping in and cutting off of a portion of the epithelium in the embryo. The atheroma arises from the plugging and distention of a hair follicle or sebaceous gland. Clinically, the

dermoid cysts are covered with a movable skin and lie close to the bone. An atheroma is a retention tumor of the annexa of the skin, and as such moves with the skin. The cysts with oily contents are transparent; the atheromata are always opaque. In anatomical structure the dermoid cysts resemble the skin in every particular, while the atheromata show a very simple structure, consisting of a thin connective-tissue layer lined with layers of flattened epithelial cells. The contents of the atheromata consist for the most part of concentrically arranged layers of horny epithelial cells, mixed with fatty material from the sebaceous glands.

**Sympathetic Ophthalmia.**—Randolph (*Arch. of Ophth.*, xxi, 3) reports the case of a farmer, aged forty-one, whose right eye was injured by a piece of steel flying from a pick on June 1, 1891. He was seen on the fifth day after the accident, at which time vision was reduced to perception of light, and the eye was excessively sensitive. He left the hospital on the third day and went home, but suffered greatly all the time, and six weeks later the other eye began to show signs of sympathy and vision fell rapidly. He was treated at his home by blisters and cold applications, and the sight improved. He came again to the hospital on August 13, 1892. The injured eye was entirely blind, the sclera injected, the pupil occluded and secluded, and the sensitiveness very marked. The other eye had vision of  $\frac{1}{200}$  and showed evidences of old iritis, with posterior synechie and spots of exudation on the anterior capsule of the lens. The fundus could scarcely be distinguished. The injured eye was enucleated, and after sterilizing with a hot knife a point at the sclero-corneal junction not far from the wound, the anterior chamber was opened with a lance-knife, which had been sterilized by passing it through an alcohol flame. The knife was then withdrawn and a platinum-wire loop was introduced and stirred round in the anterior and posterior chambers of the eye, and smear cultures on agar were made, as well as three Esmarch tubes. These tubes were subjected to the proper temperature in an oven for ten days, but no growth appeared. A small opening was then made in the anterior chamber of a rabbit with sterilized instruments. An iris forceps was introduced into the anterior chamber of the enucleated eye and a regular iridectomy was performed. The piece of iris thus removed was forced into the anterior chamber of the rabbit's eye and moved about several times in the chamber and then partly drawn out and left. In one week's time the rabbit's eye showed no evidence of disease, except a slight prolapse of the iris at this point. The cornea remained clear throughout, and the prolapsed iris was simply the result of manipulation.

**Changes in the Ophthalmoscopic Appearances of the Ciliary Region in Constitutional Diseases and in Myopia.**—Galezowski (*Ann. d'oc.*, September, 1892) draws the following conclusions from his observations: 1. Lesions of the ciliary region or circle are intimately connected with certain constitutional diseases, such as syphilis, tuberculosis, and gout. 2. In chorioiditis accompanied by floating opacities in the vitreous humor, the presence of atrophic patches is a positive indication of the syphilitic nature of the lesion. 3. If the region of the ora serrata be examined by the aid of a lens-prism, constructed of several layers of flint and crown glass, lesions may be discovered which hitherto have entirely escaped observation.

**Two Cases of Death following Enucleation in Chronic Panophthalmitis.**—Kalt (*Ann. d'oc.*, September, 1882) reports two cases. In the first case the chill of meningitis appeared twenty-four hours after the removal of the eye, and in four days the patient was dead. In the second case the meningitis appeared on the twentieth day. The autopsy in the first case showed the orbit to be intact. The chiasm was normal; there was no

pus at the base nor in the sheath of the optic nerves nor in the sinuses. The convexity of the hemispheres showed a sub-arachnoid purulent exudation, extending from the anterior part of the anterior lobes to the fissure of Rolando. This exudation was very thick over the two frontal convolutions. There was no abscess. Microscopical examination of the meninges showed a pure culture of pneumococci. In the second case vomiting began on the twentieth day, followed by delirium, carphology, coma, and death in forty-eight hours. There was no autopsy.

**The Local Treatment of Diseases of the Deeper Tissues of the Eye.**—Van Moll (*Kl. Mon. f. Aug.*, October, 1892) draws the following conclusions from his observations: Irrigation of the eye with solutions of sodium salicylate produces good results in episcleritis. Subconjunctival injections of sublimate solutions are especially indicated in most cases of iritis and iridocyclitis, and in diffuse keratitis. Injections of sodium salicylate are very useful in scleritis and in slight cases of diffuse keratitis. The injections must be carried out under the strictest antiseptic precautions.

**Considerations on the Vitreous New Formations on Descemet's Membrane and on the Iris, and Changes in the Corneal Endothelium.**—Wagemann (*Arch. für Ophthal.*, xxxviii, 2) considers, among other points in this paper, that adhesions of the iris with the posterior surface of the cornea, the membrane of Descemet being intact, will certainly lead to proliferation of the endothelium and exudation of a vitreous or glass-like substance, and that by proliferation of this endothelium there results a homogeneous, lamellated tissue resembling in structure the tissue of an anterior capsular cataract.

**Experimental Observations on the Diminution of Intra-ocular Tension met with in Purulent Chorioiditis.**—Rindfleisch (*Arch. für Ophthal.*, xxxviii, 2) draws the following conclusions from his experiments on rabbits' eyes: Immediately after injection of the mercury into the vitreous the intra-ocular tension increased and there was intense circumscribed opacity of the retina. Then followed diminution of the tension below normal, with commencing opacity of the vitreous. This was followed by continuous lessening of the tension in the injected eye with increasing suppuration in the vitreous, and simultaneous increase of tension in the fellow eye, lasting till phthisis bulbi was established in the injected eye.

**On Skiascopy.**—Rüppell (*Arch. für Ophthal.*, xxxviii, 2) has considered here the mathematical proof of the so-called iris theory, and the influence of the accommodation of the observer's eye. In regard to the images, the second image has the characteristics of one directly opposed to the first, or in the opposite direction, when the latter is in front of the pupil of the observer, and the characteristics of one in the same direction as the first when the latter stands behind the pupil. The eye of the observer must, of course, be constantly accommodated for the pupil of the patient. All complete circles, arising from whatever points of the inner zone, have their centers in the optic axis, and are of the same size at a given distance of the first image. The complete circles entirely fill the ophthalmoscopic visual field. The figures of dispersion give a definite direction to the second image. The direction of the second image is opposed to that of the first when the latter is before the pupil, and corresponds with that of the first when the latter is behind the pupil. The skiascopic examination of an eye, so far as exact results are concerned, depends upon the smallness of the pupil in the observer and the greatness in diameter of the pupil in the patient.

**The Development of Pterygium.**—Fuchs (*Arch. für Ophthal.*, xxxviii, 2) draws the following conclusions from his investigations: Clinical observation of numerous cases of pterygium proves that it originates in the pinguecula, which accounts



for its usual appearance on the nasal and temporal margins of the cornea, as well as its occurrence at the time of life which naturally leads to the growth of pinguicula. In front of the grayish margin of the pterygium the cornea shows small gray dots or streaks without loss of substance. The margin of the pterygium is the only part firmly adherent to the underlying cornea. The ocular conjunctiva is firmly united with the margin of the pterygium and by it is drawn over the cornea. This tension causes the lateral folds and the spaces beneath them. Microscopical examination confirms the result of clinical observation. The origin of the pterygium from the conjunctiva is proved by its epithelial covering. Beneath the pterygium, Bowman's membrane is usually almost entirely destroyed, but the corneal infiltration in front of the edge of the pterygium proves that a corneal lesion precedes the growth of the pterygium. To explain the latter, a possible hypothesis is that pathological changes at the limbus may interfere with the nutrition of the corneal tissue. The conjunctiva is pushed forward and pressed together by the flaps of the pinguicula, and is reduced to a thin, almost homogeneous membrane, which contains no vessels. The tissue of the pinguicula has also but few vessels, and thus there is a very marked diminution of nutrient vessels at the limbus. Fuchs thinks also that the presence of the pinguicula produces a chemical change in the blood plasma which passes from the vascular loops at the limbus into the cornea. He thinks also that proliferation at the limbus will produce the same effect on the cornea as atrophy. This change in the blood plasma may cause the deposit of hyaline flakes in the cornea similar to those met with in arcus senilis, and these are the changes noticed in the cornea in front of the edge of the advancing pterygium. He admits, however, that at present all this is pure hypothesis.

**The Operation for Intra-ocular Cysticerus.**—Seyfert (*Arch. für Ophthalm.*, xxxviii, 2) presents the results of six operations for the removal of intra-ocular cysticerus. In all six operations the meridional section was made. The wounds all healed antiseptically, and the eyes remained free from inflammatory accidents. In half of the operations one of the tendons of the muscles was divided, in order to assist in rotating the eyeball better to one side. The cysticerus was removed in five cases. In three cases it was subretinal, and in three cases it was free in the vitreous. In one case the retina was totally detached. In three cases the existing amount of vision was retained or slightly improved. In one case the vision was made worse by the operation.

**Embolism of the Arteria Centralis Retinae.**—Foster (*Arch. of Ophthalm.*, xxi, 4) reports an interesting case of this nature in a man, aged twenty-nine, who gave a history of inflammatory rheumatism accompanied by endocarditis, which resulted in mitral stenosis and regurgitation. At the time of the stoppage of the artery the patient was making his toilet, and immediately noticed that he had lost the sight of his left eye. There was no pain and no sensation. The sight was reduced to perception of light. The pupil reacted in sympathy with the other eye, but when the latter eye was covered it dilated immediately and remained passive. An ophthalmoscopic examination was made within two hours of the occurrence of the embolism. Particularly noticeable was the dense, grayish-white effusion that marked the macula lutea and optic disc. The arteries were very attenuated and almost invisible. There was no indication of interruption of current or pulsation, but a short distance below the effusion the blood-vessels were again interrupted for a small space by the grayish effusion. On the third day following the embolism the effusion became more pronounced, and whitish striations radiated from the region of the macula. At this time there was no perception of light. The patient was confined in

a darkened room, the temple was leeches every fourth day, and potassium iodide was administered. In ten days clearing began at the upper and outer edge of the disc and continued without change in the vision till the thirty-third day, when faint perception of light was noticed. Vision subsequently improved to differentiation between fingers closed or held apart near the eye.

**A Remarkable Case of Pseudo-trachoma.**—Greeff (*Arch. of Ophthalm.*, xxi, 4) reports the case of a boy, aged fourteen, whose left eyelids had been swollen for several months, with lachrymation and burning sensation. Both lids were thickened and reddened and the upper lid drooped perceptibly. Cornea clear, refraction emmetropic, and vision was  $\frac{5}{6}$ . Slight injection of ocular conjunctiva. On eversion of upper and lower lids the retrotarsal fold bulged as an intensely swollen and red mass. The conjunctiva of both lids from fornix to ciliary border was completely and densely covered with numerous milary granulations, projecting like hemispheres from the swollen conjunctiva. The granules were grayish-red and but slightly transparent. The right eye was normal in every respect. An attempt was made to remove the contents of the follicle by squeezing, but little was effected. Eight months later not a trace remained of the former huge granulations, during which period there had been no treatment whatever.

**Immature Cataract and the best Method of hastening Maturity.**—White (*Arch. of Ophthalm.*, xxi, 4) advises the thorough evacuation of the aqueous humor with the ordinary paracentesis needle, and vigorously rubbing the lens through the cornea, up and down, out and in, as well as in a circle, varying the direction of the rubber or tortoise-shell spoon to avoid striated opacities of the cornea. These movements are to be continued until the irritation of the eye warns the surgeon to desist. Atropine is instilled immediately and cold applied to the eye until the eye aches. No bandage is used. He has never seen any unpleasant complication result. In the majority of his cases the lens showed increased cloudiness the next day. He usually waits two weeks before proceeding to the extraction of the lens.

**Homonymous Superior Hemianopsia.**—Boé (*Arch. of Ophthalm.*, xxi, 4) reports a case of this nature occurring in a man aged forty-three. In the right eye there was emmetropia with normal vision; in the left eye there was hypermetropia with vision of  $\frac{3}{8}$ . The superior half of the visual field was wanting in both eyes. There was no detachment of the retina and the fundus was normal. There was marked impairment of the sense of smell. For two months the patient had complained of a dull, persistent ache in his right eye with lancinating pains at night. The acuteness of vision in both eyes and the state of the visual fields were the same six years ago that these were when Boé examined him. Boé's theory was that it was a classical case of homonymous hemianopsia simply reversed, which was caused by an alteration of a single occipital lobe, the cause of which was specific disease. The hypothesis of an abnormal distribution of the nerve fibers to the two retinæ would explain the fact better than a compression of the optic nerves, commissure, or tracts, better than a double symmetrical disease of the optic nerves, or than double and symmetrical changes in both occipital lobes.

**Keratoconus treated with the Galvano-cautery.**—Knapp (*Arch. of Ophthalm.*, xxi, 4) favors the use of the galvano-cautery, but considers that it has great dangers. If the cauterization is only superficial or consists in a mere perforation of the apex, it is insufficient and must be repeated. If the cauterization is deep, especially with a large perforation, the closure is slow, and the inflammation and its consequences may be more or less severe, including sloughing of the cornea. The

cauterization, which acts by the contraction of the cicatrix, seems the safest method. It is better to cauterize carefully, and if relapses occur, repeat the operation in the same place.

**The Anatomy of the Crystalline Lens.**—Barabaschew (*Arch. für Ophthal.*, xxxviii, 3) draws the following conclusions from his observations: 1. The mosaic network seen upon the surface of the anterior capsule of the lens of frogs, rabbits, and man, colored with silver-nitrate solution, is formed by the contours of the epithelial cells, which thrust their processes over each other, thus giving the appearance of several layers. 2. In transverse sections of such anterior capsules the contours of both the outer and inner cells appear as a black, jagged, and in places interrupted line. 3. On the posterior capsule are three kinds of figures—viz., (a) reagent precipitates; (b) figures formed by the exit of fluid from the substance of the lens; (c) impressions of the broadened ends of the lens fibers.

**Follicular Conjunctival Ulcers; Natural Transplantation of Epithelium and Glandular Development in Trachoma.**—Raehlmann (*Arch. für Ophthal.*, xxxviii, 3) thinks that if at the time of the ulceration of the softened follicle there is a very marked tension in the conjunctival tissue, not only do the softened contents of the follicle come out, but the active living part of the follicle is driven out with it. As regards the epithelium, he was enabled to demonstrate in numerous preparations that the bits of epithelium met with in the tissue of the conjunctiva may grow and increase in number and size, and may actually give off lateral processes by budding. As regards the so-called "trachoma glands," Raehlmann admits that new glandular development may occur in trachoma, but only under fixed pathologico-anatomical conditions, which are induced by the disease itself. Still, neither these new-formed glands nor the epithelial invaginations resulting from the folds of the mucous membrane have anything to do with the causation of the trachoma.

**The Microbic Nature of the Deep Inflammations of the Eye.**—Gillet de Grandmont (*Arch. d'ophthal.*, October, 1892) draws the following conclusions: 1. In deep inflammation of the posterior hemisphere of the eyeball the origin of the affection may be sought in the infectious diseases contracted by the anterior hemisphere. 2. In cases of difficult diagnosis, in order to aid our decision, we should have recourse to paracentesis of the eyeball, followed by a bacteriological culture.

**The Surgical Treatment of Granular Conjunctivitis.**—Abadie (*Arch. d'ophthal.*, October, 1892) reports the results of Dr. Viger in Algeria, which were better than by any other means of treatment employed. Great care should be taken to rid the new brush employed in "grattage" entirely of fatty substances by long boiling in water or by alcohol and ether, and then disinfect it by leaving it for an hour in a solution of sublimate (1 to 500).

**A New Operation for the Treatment of Symblepharon.**—Rogman (*Arch. d'ophthal.*, October, 1892) describes the operation as follows: After having divided the adhesions of the symblepharon so as to form an artificial *cul-de-sac*, having at least a depth equal to the natural fornix conjunctiva, a flap of skin of quadrangular shape and of the size of the lid is cut from the cheek, its summit or top being downward and its base adherent to the skin of the lid at the level of the bottom of the fornix. Lifting the flap, we cut through the underlying raw surface, detaching the tissues on all sides into the artificial *cul-de-sac*. Through this opening the flap is introduced and its summit or apex attached by sutures to the internal palpebral margin. The lid then presents the appearance of a broad handle, attached only at the nasal and temporal sides, entirely free at its center, and covered anteriorly, posteriorly, and along its edges by skin. The operation is finished by approximating

laterally the edges of the wound in the cheek. Three or four weeks later the ocular surface of the artificial *cul-de-sac* is again freshened by the knife, and all cicatricial bands between the eyeball and the external wound are destroyed. The inferior opening communicating with the *cul-de-sac* may then, if necessary, be enlarged by lateral incisions. A horizontal incision is then made about the middle of the anterior face of the palpebral handle and throughout its entire length, the skin is dissected up from above downward as far as the lower border of the handle, to which it remains attached, and the flap thus formed is drawn within the *cul-de-sac*, thus reversing it. The summit is then attached by two suture points to the eyeball, close to the corneal margin.

**The Canthoplast.**—Gazépy (*Arch. d'ophthal.*, October, 1892) has devised an instrument for performing canthoplasty, which he describes as follows: 1. A spatula, ending in a rounded angle, having about the shape of the external angle of the orbit, is inserted between the lids and pushed toward the ascending apophysis of the superior maxilla. On the anterior face of the instrument and two centimetres from its end are fixed on each side two small fins for separating the edges of the lids. 2. On the posterior surface of the instrument is a groove in which glides a curved needle, which may be pushed forward by a button, intended for the passage of a suture for fixing the conjunctiva at the angle of the skin incision. The eye of the needle is two millimetres from the point. 3. On the anterior and median surface of the spatula there is a second groove in which glides the lower branch of a pair of scissors with three articulations. This inferior branch is fixed to the spatula, but glides as far forward as the extremity of the spatula. The upper branch, which opens, glides forward with the lower, and bears on its widest part a ring, through which passes the thumb of the surgeon, who raises it when he wishes to open the branches.

## Miscellany.

**The Medical Examination of Children.**—In a clinical lecture published in the March number of the *Practitioner* Dr. A. Ernest Sansom, of London, says:

"The first thing that you have to do is to try to get the knack of dealing with children, to obtain their confidence, and to learn the meek language of their suffering. Assume that the mother, relative, or guardian brings the child, and sits near you with the child on her lap. In the first place, avoid even looking at the little patient; if it is asleep, let it remain so; if still, do not interfere with it. Address yourself in quiet tones to the mother: ask what she has brought the child for, what she has noticed in respect to it. Her answer may be fanciful: for instance, a sturdy child may be brought because, in the opinion of the mother, 'it is wasting'; but do not be in a hurry—patience and, above all, good temper, are essential if you are to do your work properly. Having made a mental note or written a memorandum of the signs noted by the mother, try to obtain from her a date approximately at which symptoms began to be manifested, and what symptoms she has observed as marking the rise and progress of the malady. Then inquire concerning certain circumstances preceding the birth of the child—How many confinements has the mother had? Any miscarriages? Any deaths among the previous children? And if so, what their supposed causes? Were the children healthy, or did they waste or manifest in infancy peculiar signs or symptoms, such as snuffling, thrush, or sores about the posteriors or the face? Did she suckle her children wholly or partially, or were they 'brought up by hand'? Then adapt a modification of such questions to the case of the child now under consideration.



"Having obtained as clear a history as you can from an unskilled observer, proceed to the more important duty of your own investigation. Disturb the child as little as possible, use all gentleness, observe it as if not observing. Let any covering be removed from the head, and look at the cranium and face. Note as to the head, whether it is large (megacephalic), small (microcephalic), or moderate and seemingly normal, whether the vertex is flat or otherwise, whether the cranium is symmetrical or unequal, or presenting 'bosses' or elevations in certain situations. You may now perhaps gently press the cranium with your finger, and feel whether it is resistant or easily compressed, or whether you find any softish spots here and there. Pass your finger around the borders of the anterior fontanelle; observe whether this be widely or moderately open, or closed. Notice its edges: are they gradually softer and thinner as you approach the open portion, or is the opening surrounded by irregular ridges? Then as to the face: is it tranquil, as in sleep, or do convulsive movements flit over it? Is there any expression of intelligence, or the vacancy of the idiot? Are the eyeballs symmetrical and quiet, or are there oscillatory movements of the globes (nystagmus) or squinting? Are the actions of the facial muscles equal on the two sides? Do you see that the muscles of one side are less pronounced and rounded than those of the other? Then, if the child should happen to cry, the condition may be shown unmistakably, for the one side of the face will be contorted, while the other will be placid and unmoved. If the child shows no disposition to move the facial muscles, tickle the soles of the feet. Probably it will laugh, and it is better to make a child laugh than to make it cry. It will almost certainly contract its face muscles, so that you can distinguish deficient movement on one side if there is any unilateral impairment. There is paralysis of the portio dura (Bell's paralysis). Is the brow contracted?—a sign of pain. Is the hand lifted to the head, or pulling at the ears? Are there moanings or a querulous cry, or occasionally a piercing shriek? Note the *hue* of face: is it pale or rosy, or 'hectic' and flushed? Is it of the deep-yellow or orange tint indicating jaundice—the conjunctiva being tinged with a like color? Is it very markedly pale or lemon-colored (such lemon-color is often to be noted in syphilis)? Is it puffed and œdematous? Such may be the case in children not only in the usual form of dropsy affecting the adult, but in the general dyscrasia of syphilis. Is it blue, of a leaden color, perhaps almost black about the lips and conjunctivæ? Then you will find the tips of the fingers cold, violet in color, and perhaps clubbed; the child is the subject of cyanosis.

"Observe the nose: is it squat, depressed, as it may be in a syphilitic child, and does an unhealthy ichor flow from the nostrils, the thick mucous-covered membrane causing the child to snuffle? If there be signs of dyspnea, notice the nostrils, for it is an important sign if they dilate with each inspiration. Note any eruptions about the head or face, behind the ear, or around the nostrils and mouth. Then at the end of this stage of the examination you must look at the tongue. It does not answer to be too timid; depress the lower jaw with thumb and finger of the right hand, while you steady the upper jaw and slightly incline the head backward with the left. It may be that the child will make an effort of inspiration at the moment, and enable you to see at a glance the natural contents of the mouth. You will see whether the tongue is clean or otherwise, whether white patches of *oidium* (thrush) cover it, whether the circumvallate papillæ at the back of the tongue are large and rough, whether the fauces are congested, or ulcers or sloughs appear upon the tonsils and adjacent mucous membrane. You will observe the lining membrane of the mouth, whether white (aphthous) spots appear scattered over it; whether the gums are swollen, what teeth have appeared, and whether they are sound or otherwise. Notice also the relation between the stage of the dentition and the age of the child.

"And now I advise you to have the child removed from the room in which you are in order to be undressed. Do not look on while this operation is going forward, for then there is much more chance of active resistance and noisy lamentation, terrors concerning possible tortures to be inflicted presenting themselves vividly before the child's mind. Along with its mother or nurse the difficulty is far less, and when once the clothes are off, and the child wrapped in blanket or flannel, you may with circumspection make your examination. Approach the back first, the child sitting on the mother's or nurse's lap, amused if possible by

anything to which its attention may be directed. Notice any deformity of spine or thorax. Place your warm hand gently upon the surface, and feel the rate of breathing; you may be sensible of the tactile fremitus which sometimes accompanies bronchitis. Then gently percuss from base to apex upon your outstretched finger or fingers closely applied to the chest; in a vast majority of cases the child will not in the least object to this operation, if you commence at the back, while if you performed the percussion first in front, in full view of the child, there would be active resistance.

"Having percussed, you will now begin to auscultate, and remember that it is from the back of the chest that, so far as the lungs are concerned, you will obtain the most valuable evidence. You may apply your ear directly to the back, or a warm covering may intervene. An ordinary wooden stethoscope does not answer; you can not readily follow any chance movement of the child, and quite unwittingly you may by the pressure of the instrument inflict pain or cause alarm. It is quite otherwise, however, with the binaural stethoscope, which for localizing the auscultatory signs in infants and children is indispensable.

"Having investigated the back, let the child be turned round so as to face you. Probably, inasmuch as your examination has hitherto caused neither terror nor pain, there will be no resistance to the rest of the investigation. Notice the general nutrition. Are the arms and thighs fairly plump, or do the muscles hang flaccidly upon the bones, the whole body showing marked attenuation? Is there paralysis or wasting of a limb or of groups of muscles? Are there any twitches, or the disordered movements of chorea? Are the thumbs drawn convulsively inward to the palm, or the toes flexed (carpo-pedal convulsions)? Observe the shape of the thorax, and pass your fingers over the ribs and their cartilages; at the junction you may find unmistakable bossy prominences, the 'chaplet' of rickets, and you may observe a well-marked groove at the lower part of the thorax from the sinking in of the too soft ribs. At the same time notice whether the ends of the long bones at the wrists, elbows, knees, or ankles are thickened. Observe whether the præcordium is unduly prominent, for it may bulge over an enlarged heart, the strong pulsations of which may be evident. Notice the condition of the respiration; is it tranquil or embarrassed? Are the intercostal, episternal, or epigastric spaces drawn in with inspiration? You may perhaps better determine the pulse-rate by counting the heart pulsations than by feeling the radial pulse. Remember, of course, that the pulse-rate is very quick in children. Note the ratio to respiration; this should be about three pulsations to a respiration— $i. e., P : R = 3 : 1$ .

"Then observe the abdomen, whether it is disproportionately large and tympanitic, or full and fluctuating (ascites), or manifesting prominences which palpation shows to be tumors, or whether it is flat and retracted. Of course you will notice whether there is abdominal tenderness, or whether the child habitually lies in such a position as to relieve it from pressure, whether the abdominal muscles perform any part in respiration or are motionless. See whether there is umbilical hernia or any sore about the navel. Observe whether any rash exists on the chest or body generally, and, if so, what are its characters. Are there proper marks of vaccination in the normal situations?

"Particularly observe the perineum, whether there is a diffuse erythematous redness in this situation, or whether copper-colored blotches, papules, or abrasions are manifested. Do white patches or exuberant growths of mucous tubercles appear about the anus, or is the skin around the orifice puckered in such manner as to suggest that the mucous membrane has been diseased at a period anterior to your examination? If there has been looseness of the bowels, try to obtain a napkin stained with the evacuations, and notice whether the dejecta are pale or deep-colored, green, or mingled with mucus, pus, or blood. Observe, too, whether the urine has stained the napkin; it may be advisable to reserve some cut-out portions of it for microscopic examination, especially if you are doubtful whether blood is passed in the urine.

"Now, as you have percussed and auscultated the back, so you must percuss and auscultate the front of the chest; note any patches of dullness in axillæ or the anterior thoracic regions; outline the præcordial dullness. For auscultation you must, as I have said, use the flexible binaural stethoscope. Note modifications of respiration and localities



of adventitious sounds; notice the conduction of the voice, if the child should happen to cry. It is often very difficult to get definite articulation for the purpose of auscultating the voice as in the adult; do not worry the child for this purpose till a future time, when coaxing may extract a few articulated words."

**Oophorectomy and Insanity.**—*Appropos of a recent disagreement between one of the physicians of a Pennsylvania lunatic asylum and the board of trustees of the institution, in which the latter were reported to have taken a somewhat arbitrary stand in virtually forbidding the further performance of oophorectomy on the inmates, save as a life-saving measure, the American Journal of Insanity says:*

"There would seem to be two questions at issue—one, in regard to the propriety of the operations; the other, as to the proper authority to decide such questions. With respect to the former, we believe that insane women are entitled to the same relief from suffering as sane women. We do not altogether agree with the opinion that the only justification for such operations is their necessity to the saving of life. We believe there is a pretty general agreement among those best qualified to judge that the suffering and impairment of health due to disease of the organs in question may be such as to warrant the risk involved. At the same time, it is notorious that the operation has not, in practice among the insane, always been confined to cases in which there was such suffering as would be held to justify it in general practice. The results in the relief of insanity have not seemed to us to be calculated to inspire so much enthusiasm as has been shown in some quarters, and we are decidedly of the opinion that, for the present at least, such operations should be strictly limited to cases in which the surgeon would feel it his duty to urge them upon private patients of sound mind.

"On the other hand, it is our opinion that, if the medical officers of a hospital, with their professional knowledge and their acquaintance with the condition of their patients, are not better judges of their needs than any persons who do not possess these qualifications, they are not fit for their positions. To undertake to hedge in persons in their place so that they can not, if so disposed, find scope for any disposition they may have toward brutal and inhuman acts, would be rather a hopeless task. It seems to us that, in a case in which there is such a radical disagreement as in this, the proper course would be to submit the cases in question to some one of acknowledged competency in such matters, and abide by his decision. If, for instance, Dr. Goodell should certify that all or any of the proposed operations are, in his opinion, demanded by the physical condition of the patients, we doubt if the Board of Charities would persist in refusing to sanction them. At all events, in case of such a refusal, it would be plain where the responsibility rested, and the medical officers could wash their hands of the blood of the victims, if they felt it consistent with their self-respect to continue to hold office under such circumstances."

**The Administration of Iron.**—In the first of his Goulstonian Lectures, published in the *British Medical Journal* for March 11th, Professor Halliburton, of King's College, London, says:

"It [iron] is usually given in the form of an inorganic salt, and the success of the treatment, especially in chlorosis, is no doubt immediate and marked. The simplest method of explaining the benefit is that the drug given supplies the iron which was before so scanty in the blood; but there are certain *a priori* reasons for doubting the accuracy of this simple explanation. Such a simple *modus operandi* would be at any rate an unusual occurrence. Metabolic phenomena are as a rule noted, not for their simplicity, but for their complexity; and it would be very improbable that the power of synthesis in animal cells would be able to build a complex organic molecule like hæmoglobin from the simple iron salts given. Moreover, there is abundant experimental proof that iron salts, unless given in very large doses, are not absorbed from the stomach or intestine (Hamburger); and, if very large doses are given, the small amount which is absorbed accumulates, like many other metals, in the liver (Zaleski). The feeding experiments on young animals, where hæmoglobin formation is most active, to which I alluded, also tend in the same direction. Whether feeding on hæmoglobin will cause hæmoglobin formation is a subject which merits renewed research. When hæmoglobin is given it is broken up in the stomach into

globin and the pigment hæmatin. The hæmatin is further changed in the intestine, and appears to contribute to the formation of the faecal pigment. Whether any is absorbed is at present unknown. Leaving out the doubtful case of hæmoglobin, physiologists have arrived at the conclusion that the only form of iron compound available for the needs of the economy is the complex organic molecule which Bunge terms hæmatogen. If this be granted, what then is the explanation of the benefit derived from iron as it is usually given in drugs? The quantity of iron in the whole body is only three grammes, and this amount is taken many times over during treatment. Bunge explains the usefulness of iron in chlorosis by its forming iron sulphide in the intestines, removing in this way excess of sulphur from the body; in chlorosis there are excessive fermentation processes in the alimentary canal, and large quantities of sulphureted hydrogen are formed which destroy the organic compounds of iron that form hæmoglobin; the administration of iron thus prevents this destruction of hæmatogen. I can not but think that this explanation, though accounting for the facts in part, does not contain the whole truth. As Landwehr points out, it hardly explains the limitation of the disease to the female sex and the period of early adolescence. Landwehr's own explanation, in which the substance he discovered and named animal gum plays a conspicuous part (and according to him it plays a conspicuous part in most physiological processes), is certainly not so feasible as Bunge's, and thus it becomes of great scientific importance that the truth of the hypothesis should be put to the test of experiment. This has already been done in a few cases by Dr. Hale White. He has treated cases of chlorosis with hydrochloric acid, a substance which undoubtedly lessens putrefaction processes; but although the patients improved somewhat, they did not mend any more rapidly than others, who were simply treated with rest in bed and wholesome food. Dr. Mott suggested to me that attempts should be made with bismuth; this, like iron, forms an insoluble sulphide, and, if Bunge's theory is true, ought to be as beneficial in anæmia as iron itself. I am not aware that this has yet been done."

**The Hamburg Rag Matter.**—In our issue for March 18th we reported from the *New York Herald* a certificate by Dr. Paul Gibier relative to his examination of certain rags said to have been imported from Hamburg. That newspaper has since published Dr. George M. Sternberg's reply to Dr. Gibier, in the form of a letter to Dr. Jenkins, the health officer of the port. Dr. Sternberg says:

"I have read the report of Dr. Paul Gibier with reference to the bacteriological examination of a sample of rags submitted to him. The bacteria described are such as are commonly found on the surface of the body of healthy individuals and attached to soiled underclothing. No doubt samples of domestic rags collected in the city of New York would show similar bacteria.

"Bordoni-Uffreduzzi, in his researches relating to the bacteria of the skin in healthy persons, obtained five different species of micrococci and two bacilli. Maggiori isolated twenty-two species of bacteria from his cultures inoculated with epidermis from the foot. Miquel, the distinguished French bacteriologist, found that 'wash water' from the floating laundries on the Seine contained more bacteria than water from any other source, even than water from the Paris sewers. His enumeration gave twenty-six million germs per cubic centimetre.

"In view of the consular certificates relating to the invoices of rags imported by Solomon & Co., and of all the facts in the case, I am of the opinion that you were fully justified in admitting them, and that the public health has been in no way endangered by your action. As to the danger from imported rags in general, I would say that in the absence of an epidemic in the country in which they are collected or at the ports from which they are shipped, there is no more danger than from rags collected in our own country, and I know of no evidence which justifies the requirement that such rags should be disinfected before they are shipped.

"The disease which is most likely to be communicated by rags is small-pox, because the virus of this disease retains its infecting power for a long time when attached to articles of wearing apparel. But, as a matter of fact, the evidence that this disease has been communicated through the handling of rags is extremely scanty.

"As regards cholera, the danger is much less on account of the ease with which the cholera spirillum is destroyed, and the fact that it does not resist desiccation.

"My own recent experiments, made with a culture obtained from a case of cholera taken to Swinburne Island from one of the Hamburg steamers in September 1892, show that when pieces of a woolen blanket are moistened with a pure culture of the cholera spirillum and exposed for a few hours to the direct rays of the sun the 'germ' is destroyed, and that when exposed freely to the air in a dark closet they do not survive longer than forty-eight hours. Similar results were obtained when pieces of white blotting paper were moistened with a culture of the cholera spirillum and exposed in the same way.

"The Imperial Board of Health of Germany has recently published the results of an extended series of experiments made to determine the length of time the cholera spirillum will survive upon the pulp of various kinds of fruit and upon the surface of fresh or salted fish, etc.

"I give below a brief summary of the results reported: Upon fresh flounder, carp, and shellfish the spirillum died out in two days; upon smoked or salted herring, in twenty-four hours. Upon confectionery of sugar, chocolate, or almonds no developments occurred after twenty-four hours. At the room temperature upon sweet cherries the spirillum survived from three to seven days; upon sour cherries, three hours; strawberries, one day; pears, two to five days; cucumbers, five to seven days.

"At a temperature of 37° C. the time during which the spirillum retained its vitality was, as a rule, somewhat less. Upon the surface of the dried fruits—cherries, apricots, peaches, and plums—the spirillum could not be recovered after one or two days. When the dried fruit was moistened the time was longer—one day on apricots, two days on peaches, five days on cherries, six days on cucumbers.

"Uffelmann, in a recently published article, gives some additional data of interest in this connection. In his experiments the cholera spirillum was found to survive upon the surface of slices of rye bread freely exposed to the air for twenty-four hours; when the bread was wrapped in paper for three days, and when it was placed under a bell jar for seven days upon slightly acid butter, the spirillum survived for four to six days.

"In Uffelmann's experiments the time of survival upon textile fabrics which were apparently dry is said to have been four days; upon moist goods the spirillum was found to be still living at the end of twelve days.

"In view of the experimental data referred to, it is evident that we have nothing to fear from dry rags which have been stored for a month or more. But during the prevalence of cholera in any part of Europe or elsewhere I think it prudent to exclude old rags which have been collected in the infected area or which are shipped from an infected port, as there are possibilities of danger if the rags are not thoroughly dry when packed in bales."

"**Coughing Downward.**"—Under the title of Coughing made Easy in Bronchitis, Dr. H. D. Didama, of Syracuse, N. Y., relates the following in the *Journal of the American Medical Association* for March 1891:

"Recently Mrs. H., of C., about thirty-five years of age, came under my observation. She had had bronchial catarrh for a year and a half, and a few slight hemorrhages.

"After a time the cough became paroxysmal, and during these violent fits, which lasted without sensible mitigation from sixty minutes to three hours, the copious expectoration was so offensive that the windows had to be kept open. The disease was thought to be tuberculous, cancerous ulceration, or gangrene which involved the stomach, for vomiting was of frequent occurrence, and the odor of the vomited material was also, as the patient expressed it, enough to knock anybody down.

"At my first visit the patient was found weak and emaciated, but without the tuberculous or cancerous facial expression. The scent of the expectoration fairly justified the description given. The history showed that enough food was taken, but that two or three times a day it was all vomited, and that these vomiting spells coincided with the severe coughing ones. There was some diarrhea, but the odor of the

alvine discharges was entirely unlike that of the vomited material. There was no gastralgia, no tenderness in the epigastric region. The diagnosis, of course, was uncomplicated bronchitis. The rationale of the symptoms was obvious. If the stomach had been involved the stools would have possessed the peculiar odor of the sputa. Nausea and vomiting, which were excited by the violent coughing and the repulsive smell, increased mechanically the amount of the putrid material expectorated, and this, mingled with the ejected food, perfumed the whole mass and led to the mistaken diagnosis of gastric ulceration or gangrene.

"Proper explanations were made and encouragement given to the intelligent patient, and a therapeutic plan was instituted which included tonics of iron, strychnine, Venice turpentine, santal, etc., and the use with a steam atomizer of a deodorizing spray.

"Perhaps the most important element in the treatment of this case and the one at the junction was the emphatic and iterated direction to cough downward. The usual and proper information was given to the patient that a pocket was formed in the tubes of the lungs, and that when this pocket became filled and running over, as it did two or three times a day, the unpleasant and irritating material caused the terrible fits of coughing. The walls of the pocket, it was further explained, were so thick that even the most violent and long-continued attacks could not compress them enough to empty the pocket entirely, and so a portion of the putrid matter remained to contaminate future collections. Now, by lying in bed (the patient was told) or on the lounge, with one hand on the floor and the head almost reaching there, the pocket would be inverted and the fluid would run out almost of itself, and its expulsion would be hastened by a short spell of coughing. The direction was given not to wait until the pocket became wholly filled again, but to anticipate this period by inversion four or five times daily.

"The injunctions were obeyed. The result was favorable. In five minutes the pocket was emptied more completely than when she had formerly 'coughed her head off' for an hour or longer. The odor disappeared, vomiting and diarrhea ceased, the flesh came back, and to-day, with the exception of a slight cough and a few mucous râles in the left infra-axillary region, the grateful patient, who rides twenty miles to town for inspection every two weeks, is decidedly convalescent.

"It is proper to add that the idea of coughing down hill was derived from a small pamphlet published nearly fifty years ago by the poet N. P. Willis, who claimed that he had cured himself of consumption by this original device and by horseback exercise. In all probability the supposed consumption of the poet was bronchitis, but his suggestion is none the less valuable; and the writer of this paper has known great—even if temporary—relief and comfort to be obtained by this gravity treatment in cases of phthisis, when large cavities and excessively annoying coughs existed.

"Recently I was invited to see a patient who had a cavity in the right infraclavicular region capacious enough to hold a teacupful of muco-pus. He discovered that he could sleep three or four hours with but little disturbance while lying on his right side, but that if—after this period of repose—he turned upon his left side, a brief fit of coughing ensued. If he attempted to sleep lying on his left side, the cough was incessant, and the sputa only moderate in amount. Every one can see without explanation that while in one position the secretion accumulated, exciting in the nerveless pocket little or no cough till the reservoir was filled, when, on turning over, the irritating material ran out by gravity into the sensitive bronchi and produced an easy cough, sufficiently prolonged to secure thorough evacuation; in the other position—on the left side—there was a continual dripping from the abscess cavity and a wearing cough which banished sleep. Two mornings after, as I learn, the patient, after a prolonged sleep which lasted all night, turned upon his left side. The large amount of pus which had been permitted to accumulate during this long period poured out suddenly into the tubes and produced strangulation and almost instant death.

"It is respectfully submitted that this *facilis descensus* treatment might be so beneficial in some cases of real or supposed gangrene of the lung, communicating with a bronchus, that pneumonectomy might be unnecessary."

**Some Current Fallacies.**—In concluding an article on *The Course of the Inferior Latissimus Nerve*, in the *Lancet* for March 11th, Mr. W. Ramsay Smith, of Edinburgh, mentions a number of theoretical assumptions that are easily overthrown by practical tests. He says:

"Theories of this description are very fascinating. They are often wrong, but criticism of them not infrequently points the way to a truer explanation. The works of old masters in science, medicine, and philosophy are full of them, some fanciful in the extreme, some evidently erroneous, some seemingly true, yet all requiring rigorous testing. To mention many of those theories would be tedious and useless. I may take, however, from my note-books a few instances of theories taught even now that have probably as little foundation in fact as the theories that have been exploded ages ago:

"1. Normal knock-knee in women is said to be due to the greater width of the pelvis. Let it be granted that the pelvis is wider in women, as it is granted that women possess ovaries—how does width of pelvis explain knock-knee? Does width of pelvis explain the greater degree of knock-elbow in women?

"2. 'In the act of swallowing, the lower jaw, it is said, is firmly applied to the upper. This is said to be necessary in order that the muscles attached to the lower jaw may have a fixed point to act from. But swallowing is possible without fixing the lower jaw to the upper. It is not possible, however, without fixing the tongue.

"3. Spigelius says that the function of the buttocks is to form a cushion on which the body may be softly supported, for the purpose of divine cogitation. Is there any real advance on this theory?

"4. It is taught that the great preponderance of muscles inserted on the inner aspect of the tibia is to be explained in relation to the unscrewing of the knee joint at the beginning of the movement of flexion. I have examined this theory in the *Journal of Anatomy and Physiology*, and have ventured an explanation that may also cast some light upon the function of the buttocks.

"5. The 'reflex pain' in the knee in cases of hip-joint disease is explained by the fact that the obturator nerve supplies both. Is this a real explanation? In this connection I may state that I have found that stimulation of a spot of skin about an inch to the left of the external occipital protuberance is associated with a corresponding sensation at the same instant, referred to a spot just over the tip of the twelfth rib on the left side.

"These are only a few instances, but they illustrate how very necessary it is to apply a little logical criticism to every theory in anatomy and physiology, however well established it may appear to be. Medical science appears to suffer more from want of well-trained minds than from want of the spirit of investigation."

**The American Academy of Medicine** will meet in Milwaukee on Saturday, June 3d. The preliminary programme includes the following titles: *The Attitude of our Medical Schools in Relation to Preliminary Studies*, by Dr. R. Lowry Sibbet, of Carlisle, Pa.; *What Mental Faculties should be specially trained for the Study of Medicine?* by Dr. James W. Moore, of Lafayette College; *The Classics and the Common Schools*, by Dr. J. Berrien Lindsley, of Nashville, Tenn.; *What should be required in an Entrance Examination to a Medical School*, by Dr. James W. Holland, of Jefferson Medical School; *Should there be Elective Studies in a Medical Course*, by Dr. P. S. Conner, of Dartmouth College; *On the Endowment of Medical Schools*, by Dr. George M. Gould, of Philadelphia; *The Duty of the State to Medicine*, by Dr. Benjamin Lee, of Philadelphia; and *The Importance of the Study of Medical Sociology*, by Dr. Charles McIntire, of Easton, Pa.; also the president's address and a paper (title to be announced) by Dr. C. C. Bombaugh, of Baltimore.

**The Action of Coca.**—*The Trained Nurse* reprints from the *London Hospital* an article in which the writer, who states that he has had considerable experience with Mariani's coca wine, concludes as follows:

"The scientific study of cocaine has led to a better comprehension of the mysterious qualities of the coca leaf. The first effect is sedative, rapidly followed by stimulation, in which the heart beats are quickened, the nervous system becomes more active, the intelligence more acute, and the muscles pass more easily into a state of contrac-

tion. Dr. Mantagazza says that when he was under the influence of coca he had an irresistible inclination to gymnastic exercise. The absence of the sense of hunger seems to be due not only to the anæsthetic effect of the cocaine on the nerve ends of the stomach, but also to the fact that coca is an actual economizer of food, and so modifies the vital processes in muscle as to affect its chemical activity and render it capable of performing an equal and greater amount of work with a lesser consumption of carbohydrates (Stockman). The absence of emaciation or subsequent debility or other bad results after the most exalted powers of the organism have been called forth points to coca being more than a nerve stimulant, but also an actual economizer of the bodily expenditure. If it diminishes the consumption of carbohydrates during muscular activity—that is to say, enables the machine to work with less fuel—less oxygen will be required, and hence is explained the effect coca has in preventing breathlessness when ascending high mountains. Too much stress can not be laid on the importance of using only a reliable preparation of the drug."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be hereafter sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specific issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*



## Original Communications.

## MOTOR NEUROSES OF THE HEART.\*

BY GEORGE W. JACOBY, M. D.

IN a very large number, probably in more than half, of the persons who consult us on account of some motor disorder of the heart, no anatomical lesion is clinically discoverable and no mechanical cause can be found. In such cases it is reasonable to seek for the cause of the altered function in some disorder of the complicated nervous apparatus of the heart. Although our knowledge of neurotic cardiac disorder has been materially enlarged by the progress made in cardiac physiology, upon many points we are still insufficiently informed and have nothing but unsubstantiated theories to guide us in our clinical estimate of these conditions. If we consider how intimate is the connection of the heart with the brain and other organs by means of the vagi and the sympathetic nerves, we should not wonder at the frequency of functional cardiac disorders, and must acknowledge that the subject is one of great practical and theoretical interest and one which is eminently suited for discussion by this society. The subject before us is a very large and elastic one, so that, in order to even approximately do it justice, we must confine the discussion strictly to the question before us. The subject of motor neuroses excludes all disorders dependent upon organic disease of the heart, vessels, or central nervous system. I will admit that it is possible for patients with organic disease of the heart to present symptoms which are of neurotic production and independent of the organic change, and such cases have been included in our subject by other observers; but I deem it practical to exclude their consideration from this discussion, as their causation must be more or less obscure, and instead of aiding they can only serve to confuse us. The consideration of all the points connected with such motor neuroses would require more time than has been allotted to me, so that my remarks will necessarily be incomplete and fragmentary.

The subject as I will present it may conveniently be divided into intermittent, irregular, abnormally slow (bradycardia), and abnormally frequent (tachycardia) heart's action. Intermittency is that form of arrhythmia in which from time to time there is complete cessation of the heart's action, usually followed by a stronger or more forcible beat. This is generally described by the patient as a sudden jerk and gives rise to a very disagreeable sensation. This intermittency may be true or false; in the latter form the pulse fails, but the heart is regular, while in the former the heart beat is actually dropped, so that there is no evidence of any contraction at the heart itself or at the arteries. This false intermittency has been occasionally confounded with bradycardia, because the heart itself was not examined, the pulse alone being taken, and this representing but one half or one

third of the actual number of heart beats. Irregularity may be incomplete or complete. There is in both forms an irregularity of rhythm and of tension, but in the first form the number of pulsations varies from minute to minute, or a number of high pulsations is followed by a greater or lesser number of low pulsations; in the second form the pulsations follow each other entirely irregularly with a continuous changeability of height and tension. In contradistinction to intermittency, irregularity rarely gives rise to any subjective feeling. There has been an attempt made by most writers to make a marked distinction between intermittency and irregularity, and it has been variously claimed that irregularity is more serious than intermittency, and by others that the reverse holds true. It has never seemed to me as though any marked dividing line could be drawn between the two, as their occurrence in one and the same patient is not uncommon. These forms of arrhythmia may be persistent or only temporary; when persistent I consider it probable that they are due to some organic disease of the heart, whether such can be detected or not; when they are temporary, they are either dependent upon defective blood mixture or are purely neurotic. Very frequently the cause is to be sought in some disorder of digestion, not only of the stomach but also of the intestines, and the arrhythmia is then explicable by a reflex from the abdomen to the vagus; caused in the same manner, these symptoms are often found as part and parcel of a general neurasthenia. Frequently we find that an arrhythmia is caused by psychic influences; in this connection it must be stated that such arrhythmias always occur in the form of intermittencies and are produced only by psychic influences of a depressing nature.

Arrhythmias have been noted during chorea and also after sudden fright. Webber, of Boston, has described two cases occurring from the latter cause. As a prodromal symptom of psychoses (acute mania) they are said not to be rare. Of all the causes which I have found to be potent in the production of arrhythmias, toxic influences associated with sexual excesses (natural or unnatural) have been the most frequent. The toxic influences consisted in the excessive use of tea, coffee, tobacco, and alcohol. All these elements in the production of arrhythmias are well known, but I would like to lay stress particularly upon the influence of alcohol in their production. I have many times noticed arrhythmias, particularly intermittency, occurring in people addicted to only a moderate use of alcohol, but as they were generally also users of tobacco, it was difficult to estimate the precise influence of the alcohol in the production of the trouble. Two cases were, however, conclusive in proving to me that alcohol in itself must be considered a direct cause. Both of these patients were females who in consequence of domestic affliction indulged in the immoderate use of alcoholic stimulants. In both of them there was developed a multiple alcoholic neuritis with motor symptoms, and in both of them at a time when otherwise only sensory disturbances were present a marked intermittency of the heart's action set in, so that in one patient about four intermissions per minute occurred, while in the other every fifth or sixth beat was

\* Read in opening a discussion upon this subject at the New York Neurological Society, February 7, 1893.

lost. This condition kept up for months, until, in consequence of the absolute withdrawal of alcohol, the condition entirely disappeared. No doubt an alcoholic neuritis of some of the cardiac nerve endings was here at fault.

*Slow Heart (Bradycardia).*—Although the term bradycardia has only been used in recent years and was applied by Grob in opposition to the term tachycardia, the slowing of the heart's action in consequence of disease has long been recognized.

According to Riegel, the term should be applied only to such cases in which the pulse falls below 60 a minute, and Taylor wishes it applied to such pulses only as do not rise above 40 a minute. All in all, I consider the term an unfortunate one, as it represents one symptom only, and this may be due to a variety of causes. If we make use of the term at all, we ought to limit it to such cases in which the infrequency of the pulse is due to a disorder of innervation. An examination of the fairly extensive literature of the subject can leave no doubt upon our mind that abnormal conditions in the innervation of the heart may produce a slowing of that organ without it itself being affected. Whether, however, bradycardia ever occurs as a pure neurosis in the same sense as paroxysmal tachycardia does, is more than doubtful. Certain it is that slow heart occurs usually as a symptom of organic disease, whether this be confined to the heart and its arteries or to the brain. A slight reduction in the frequency of the pulse is very common in disturbances of the digestive tract. Particularly is this the case in dilatation of the stomach. These cases have been explained by assuming a reflex action upon the cardiac vagus branches or from the abdominal sympathetic. Certainly from the experiments of Goltz and others this assumption is not without physiological basis, but I have been wont to ascribe these conditions to processes of self-intoxication, and I am not prepared to say that I am wrong.

In patients otherwise healthy, the occurrence of slow heart is, in my experience, an exceedingly rare condition, and if the use of the term bradycardia is limited to such cases, I do not think that my experience will be considered exceptional.

By others, bradycardia as a neurosis has been described, and is said to occur transitorily as well as permanently.

It will hardly be maintained, as has been asserted, that cases of slow heart occurring in "angina pectoris," so called, belong to this category, for this term also only specifies a symptom complex found in disorders of various nature. Illustrative of this remark is a case of angina pectoris with bradycardia described by Heine. In this patient the heart would come to a complete standstill for a space of time equivalent to four to six beats. Upon autopsy the right phrenic nerve was found imbedded in a calcareous mass and the nervus cardiacus magnus and the branches of the left vagus were implicated in anatomical disease. As a true neurosis of the heart, bradycardia seems to occur in that form described by Seeligmüller as "neurasthenia cordis." Here there is weakness of the heart impulse and of the heart sounds with marked slowing. Upon rising in the morning, the pulse does not exceed 40 a minute; later it rises to 50 or 60, but rarely

higher. In severe cases this weakness is permanent, in others it is intermittent. Seeligmüller attributes these cases to disorder of innervation, but whether it is the vagus, the sympathetic, or the medulla oblongata which is at fault can not be stated.

Of all forms of bradycardia, that which is best known is the slow pulse which occurs in organic disease of the nervous system. We can not draw such cases into this discussion any more than those of bradycardia due to disease of the heart or vessels. I may, however, be pardoned for speaking of a class of cases which are exceedingly interesting and not at all rare, but whose pathology is still sadly at fault. I refer to the occurrence of slow heart with convulsions. This combination, according to Sée, is seen in fatty heart and atheroma of the arteries, and he noted the occurrence seven times in men and three times in women, all the patients being between twenty-five and forty years of age. The cases to which I refer differ from these inasmuch as they presented no discoverable signs of heart or brain disease. I have notes of two such cases, but both of these lose much of their interest through not being verified by an autopsy. The one case occurred in a man, aged forty, who had for two years suffered from marked epileptic attacks. His pulse-rate was about 48 a minute whenever I had occasion to examine him. There were no other signs of disease of the heart, kidneys, or brain.

The second case occurred in a man aged forty-five. He had attacks of unconsciousness which I considered epileptic and which occurred at varying intervals for a space of about nine months. His heart beat was 60 per minute and intermittent. No murmur. Kidneys normal. No symptoms of organic brain disease. This patient died while away from my observation, and Dr. Irwin, who saw him, writes me that his pulse ranged from 17 to 26 beats per minute for five days. No autopsy was permitted. I am far from maintaining that there was no organic disease in these cases, but mention them on account of the interesting symptom complex without any clinically discoverable cause. Whether the experiments of Landois, which showed that venous stasis in the medulla could produce epileptoid attacks and reduced pulse, cast any light upon these cases is questionable.

Furthermore, I should like to call attention to the practical point raised by Dehio—namely, that cases of slow pulse due to disease of the heart itself (cardiac cases) can be clinically distinguished from those in which the slow pulse is due to direct or indirect excitation of the inhibitory vagus center in the medulla—extra-cardiac cases.

Inasmuch as atropine paralyzes the vagus terminations in the heart, an injection of this alkaloid will increase the heart's action in those cases which are of extra-cardiac origin, while in the cardiac cases it remains without effect. A single injection is said to be sufficient. I have had no experience in this direction.

*Paroxysmal Tachycardia.*—Before entering upon the very interesting cases of tachycardia, I should properly refer to cases of nervous palpitation, particularly as it has been claimed that tachycardia is only an attack of excessive

palpitation. The cases of palpitation are, however, so well known that I may be excused from speaking of them. Whoever has witnessed a tachycardiac attack after having seen many cases of palpitation will at once recognize that he is in the presence of a condition which in every way is totally different from anything before witnessed. Since the article of Bouveret, published in 1889, which gave a summary of all previous work upon the subject, several important contributions have been published. It can not be a question here of going into the very large literature of the subject, but I desire particularly to mention the paper read by Debove and Boulay at the Société médicale des hôpitaux in December, 1890, and to the discussion which followed, as herein much is contained which is of value in explaining these cases.

I shall not speak of the many varieties of tachycardia, and will be particular to exclude from my remarks all cases of symptomatic tachycardia, restricting myself to a consideration of those cases of violent heart's action only which occur paroxysmally and without obvious reason.

The tachycardiac attack is always sudden in its onset and usually unexpected. Prodromal symptoms are rarely present, and if any are observed they are vague and unreliable, and are not the same in the different attacks. The first symptom is the sudden increase in the pulse from normal to 180, to 240, or, if the count can be relied upon, even to 300. There is never any irregularity of rhythm as there is in cases of excessive palpitation. There is no intermittence, but the beats are all of the same intensity, so that, as in the fetal heart, you can not distinguish systole from diastole; at the same time the single beats are clear, distinct, and very short. The heart beats in a strong and energetic manner, so that it is easily felt. There may be no other symptom present, so that the patient keeps up and is around during the attack. Usually other symptoms oblige the patient to lie down. During or between frequently recurring attacks the apex may be displaced, cardiac dullness increased, and a systolic murmur heard at the apex. These signs are always transitory and are not of any organic import. In direct contrast to the rapid and strong heart's action is the extreme diminution of arterial tension. As shown by Debove and Boulay, this symptom is quite as important as the rapidity of the heart's action; the pulse may become almost imperceptible, even in the femoral, while the heart beats clearly and distinctly. In all the attacks which I have witnessed this distinction has been marked at some period of the attack; it is not necessarily present throughout the entire attack, and the tension may change under the finger of the examiner. These authors believe this symptom to be of distinctive value in the diagnosis between symptomatic and essential tachycardia. The cessation of the attack is as sudden as its onset; it may be preceded by one or more forcible and slower beats and is accompanied by a disagreeable sensation, which is variously described by the patient. One of my patients, whose knowledge of the pathology of the affection had been enriched by previous medical advisers, told me he felt "the vagus go back into place." Others speak of a "shock" in the cervical region. The paroxysms

vary in duration from a few minutes to several hours, and occasionally last even for days. Bouveret has attempted to distinguish cases with long attacks from those with short attacks, but this is purely artificial and can find no practical application. The patient above referred to has carefully noted down the time of onset and of cessation of all attacks occurring during a period of two years—namely, from February, 1889, to February, 1891—and this list shows how variable the duration may be. In all, he had during these two years sixty-three attacks, and while of these the great majority lasted from a few minutes to twenty-four hours, several lasted over thirty-six hours, and one attack, which occurred since the list was made up, lasted three days.

The intervals between the attacks vary in duration even more than do the attacks themselves. Another symptom which is generally present is some disorder of the urine. During the attack the excretion of urine is generally diminished; but in one of the cases which I have observed the termination of the attack was always followed by the passage of a very large quantity of clear, limpid urine. In a case described by Huber this polyuria occurred during the attacks. In some of the published cases there have also been pupillary symptoms (myosis or dilatation). Sweating is frequent, and if the attack lasts very long a rise of temperature may occur. Whether this rise of temperature is not only a secondary symptom due to pulmonary complication is not decided. These are the essential symptoms of the attack; other symptoms are secondary, dependent upon the duration of the attack and upon the psychic condition of the patient, and are very variable. The affection is characterized by its paroxysmal nature, and the patient is always in danger of a recurrence of the attack.

Subjectively and objectively the patient is perfectly well during the intervals of these paroxysms. Above all, and this is essential, no cardiac disorder can be discovered.

The etiology of these cases must remain obscure so long as our knowledge of their pathogeny is as theoretical as it still is. Psychic influences, fright, errors of diet, bodily exertion, have all been assigned as causes of the affection and as excitants of the single attacks. All that we can say positively is that it is an affection of adult life (it has never been noted in infants or small children), and that the best-established causes are bodily and cerebral overwork.

That nervous predisposition, hysteria, and neurasthenia have any particular influence upon its production is very doubtful. Essential to a consideration of the pathology of these cases is a brief review of the status of our physiological knowledge. The nervous mechanism of the heart is exceedingly complicated, and its study is surrounded by difficulties, so that our understanding of the subject is still imperfect. What we do know is as follows: The contraction of the heart is automatic and rhythmically regular. The rhythmical action is due either to the action of the cardiac ganglia, most of which are situated superficially in the walls of the auricles, in the auriculo-ventricular groove, and in the basal portion of the ventricles, or to an inherent contractile power of the muscular tissue independent of all ganglia. It



is probable, from the experiments of Gaskell upon lower animals and from the embryological researches of His and Romberg, that the latter assumption is correct. His and Romberg were able to show that all the ganglia of the heart are sympathetic; inasmuch as all sympathetic ganglia are purely sensory, these heart ganglia must be sensory, and can not have any motor functions which would entitle them to be considered as automatic heart centers which actively influence the inhibition or acceleration of the heart's action.

Physiologically, also, a great deal speaks against the motor qualities of these ganglia and for their sensory nature. If these ganglia in any way control the rhythm of the heart, this is done only reflexly by means of their sensory qualities. However this may be, the heart is easily affected in its action by general nervous influences, through its intimate connection with the sympathetic and cerebrospinal nervous centers. This connection is established by two sets of fibers going to the heart from the central nervous system, which belong to the vagus proper and to the cervical sympathetic. These two sets of fibers have opposite and antagonistic effects upon the heart, the one set reducing its action, inhibiting it, not to speak of other effects, and the other increasing or accelerating. Both of these sets of fibers may be traced to the central nervous system, and the heart may be inhibited or accelerated by excitation of this central nervous system, whether such excitation is produced directly or indirectly by an afferent (reflex) impulse. Inhibition of the heart's action may therefore be produced by impulses starting in the medulla oblongata, by stimulation of the vagus trunk (spinal accessory fibers), and by stimulation which reaches the cardio-inhibitory center in a reflex manner. This cardio-inhibitory center is continually exerting its restraining power upon the heart, and its action is intensified by excitation.

The details of the process concerned in the production of accelerating impulses are not so well known, but there can be no doubt that this production is also governed by the central nervous system. It is probable that there exists in the medulla oblongata a center the excitation of which produces acceleration of the heart's action. This center is supposed to be intermittent in its action, in contradistinction to the action of the cardio-inhibitory center, which is constant.

The assumption that the action of the accelerating center is also constant would enable us to explain much which is now not clear in the antagonistic action of the inhibitory and accelerating nerves.

What changes occur in the heart itself in consequence of this inhibiting or accelerating action is still a matter of speculation.

The chief interest in these cases must lie in the question as to their nature. That we are really dealing with a nervous affection can, I think, not be doubted, but whether this affection is of a functional nature is not so clear. What has done much to obscure our knowledge upon this point has been the classing of cases of permanent tachycardia together with those of paroxysmal tachycardia. Cases of permanent tachycardia are undoubtedly always dependent

upon muscular disease of the heart, or upon anatomical disorder of the nervous system. But, even in paroxysmal cases without any clinical signs of organic disease, it has been contended that the cause must be sought in mural disease of the heart. West is the chief champion of this view. Pathological findings, however, do not furnish very much weight to this assumption, for all the changes which have been found in the heart may be secondary to the affection itself, caused by the overtaxation of the heart or by disordered innervation. In no case of essential paroxysmal tachycardia, in which the nervous system has been examined, could any lesion be found. Neither should this absence of lesion surprise us, as it is in accordance with the paroxysmal character, the sudden onset and sudden cessation of the attacks, and with the absence of clinical signs in the intervallary periods.

Nor can we legitimately assume that the tachycardia is part and parcel of any known general neurosis. Hysteria and neurasthenia can be discarded; Basedow's disease has been thought of, and in some cases with tremor and perspirations the idea is apparently not unnatural; but never in Basedow do we have a pulse of this kind with such marked subtenion of the arteries.

The disorder must lie at some definite point of the nervous system. These parts may be the vagus, the sympathetic, the cerebral inhibitory or accelerator centers, or the intrinsic cardiac ganglia. From the present status of our physiological knowledge we may exclude these latter. Various theories exist as to whether the vagus or the sympathetic is at fault, and there is a great deal to be said in favor of both views. Transitory disturbances of equilibrium—as psychic influences, which are able to cause palpitation—are not sufficient to cause these attacks. There must be injury of greater intensity; therefore the assumption is that the attacks are due either to paralysis of the vagus or to irritation of the accelerans of the sympathetic, or to both combined. An excitation of the sympathetic is not difficult to understand, for we are able to find analogies in other nerve territories. The production of an attack by percussion of the thorax (as often occurs), the occurrence with pallor of the face, dilatation or variability of the pupils, profuse sweating (as in a case of Bramwell's) which is sometimes unilateral, prominent eyeballs, coldness of the extremities, point to the accelerator of the sympathetic. Furthermore, the possibility of stopping an attack by taking a few deep breaths points in the same direction, for if the inhibitory function of the vagus were suspended, it could probably not be so readily aroused.

Brannan believes that we are dealing with a temporary disorder in the innervation of the heart caused by excitation of the sympathetic, and Wood assumes the paroxysms to be due to a discharge of nerve force analogous to what occurs in an epileptic paroxysm, the discharging lesion affecting the accelerator center of the sympathetic. Cases which point entirely to a sympathetic disorder, but which are accompanied by polyuria during the attack (Huber's case), raise a doubt in our mind concerning the pure sympathetic influence, for it is doubtful whether we can explain this increase of urine by sympathetic irritation. It would

in such cases seem as though a more general irritation of the medulla existed. On the other hand, Lehr, as well as Dehio, leave the sympathetic entirely out of the question, and take the position adopted by many—that regulation of the heart's action takes place exclusively from the vagus center.

That the trouble is not due to a lesion of the pneumogastric nerves themselves is to be assumed from the fact that under such circumstances the trouble would be permanent from the beginning or soon become so. Nothnagel and others—and perhaps the majority of clinical cases point in this direction—assume that the trouble lies in the vagus center, and that we are not dealing with a paralysis of the vagus, which would be difficult to understand, but with a paroxysmal interruption of the normal continuous excitation of the vagus, this being analogous to the sudden loss of consciousness in epileptics or, a better comparison, to the periodical interruptions in the function of the central nervous apparatus of hysterical patients.

Clinically we find that cases vary and that it is difficult, even impossible, to say in a given case what nerve influence is at fault. All in all, I do not think that we can take sides with one party or the other, but that we must be satisfied with the explanation that we are dealing with a bulbar neurosis. Let us remember the antagonism between the accelerating and inhibitory nerves, and this antagonism becomes all the more evident if we assume that the action of the accelerans is not rhythmical but continuous, the same as that of the vagus. Then any interference with this opposed action of the two nerves, either one being temporarily below its normal strength, would destroy the equilibrium and produce a disorder in the normal rhythm of the heart.

Certainly the assumption of a bulbar neurosis explains all the symptoms encountered in the various cases. Some of these cases are exceedingly complicated and can not be understood by any hypothesis which attempts to more closely localize the process. Thus in a case described by Bunzl-Federn, in addition to the paroxysmal tachycardia, there was paralysis of the left trochlearis, paresis of the right levator palpebrarum and complete immobility of the pupils to light, convergence and accommodation, with normal fundus. These paralytic symptoms were undoubtedly neuritic or nuclear; but if the tachycardia were due to the same cause it would necessarily be constant. I am able to report even a more instructive case, which I shall publish *in extenso* at some future time.

It is briefly this: A male patient, aged forty-six, with a history of rheumatic pains (he calls them so), at the age of forty-three, after years of excessive worry and mental excitement, had an attack of paroxysmal tachycardia which lasted several hours, and, from his description, differed in no way from other typical cases. He was carefully examined at that time, but no organic disease detected. These tachycardiac attacks recurred at varying intervals, and lasted from a few minutes to several hours. In some he was able to be up, while during others he was obliged to take to his bed. His pulse during these attacks, he says, was so fast that his physician could not count it. He came to me at the age of forty-six for other symptoms, which

had come on during the preceding three months. They consisted in a diplopia due to a left abducens paralysis, and occipital headache. Furthermore, I was able to note inequality of the pupils and a slight bilateral atrophy of the tongue. His pulse-rate was 120 a minute. The heart and kidneys were apparently normal. Since then two years have elapsed. He now presents a double abducens paralysis, myosis and immobility of the pupils, and marked atrophy of the tongue, and his pulse is never lower than 120, sometimes slightly higher. He has had no tachycardiac attack for nearly three years. That we are here dealing with a case of bulbar nuclear degeneration will, I think, not be questioned, and that the primary tachycardiac attacks, which have given way to a continuous fast pulse of 120, were the first symptoms of this disease is also certain. This case, which now is one of organic disease, I certainly would, had I seen it in the beginning, have classed as a neurosis. In my experience—and the more I see the more do I become fortified in this position—neuroses are often the precursors of organic disease. I have now under treatment a girl with all the symptoms of organic spinal-cord disease who years ago was treated for and cured of hysterical paraplegia. The celebrated case of Charcot, that of an old hysterical patient with long-standing contractures, in which upon autopsy a sclerosis of the lateral columns was found, and neurasthenic patients who after a time become paretics, are known to us all. These things can hardly be coincidences. It seems to me that it is more reasonable to assume that organic disease was a direct outcome of the functional disorder.

So long as the equilibrium of the nervous system can be re-established after functional disorder, so long as repair outbalances waste, so long can we speak of functional disorder. As soon, however, as waste is in excess of repair, so soon do we have lesion and with it organic disease. So in all these cases of motor neuroses of the heart, what today we look upon as a pure neurosis may remain so for a period of time and then get well, or may develop into organic disease. Their prognosis, therefore, is not to be estimated from the cardiac symptoms alone.

#### OBSERVATIONS UPON THE LIABILITY OF THE FŒTUS IN UTERO TO THE VARIOUS DISEASES OF POST-NATAL LIFE,

AND ALSO UPON THE GREAT IMPORTANCE OF THEIR MORE DILIGENT STUDY,  
WITH A VIEW TO THEIR PREVENTION OR CURE.

By WILLIAM BODENHAMER, M. D., LL. D.

THE object of the writer in selecting this particular subject for discussion on this occasion is briefly to call attention to a much-neglected subject—namely, to that of the diseases of the fetus *in utero*. The great importance of their energetic investigation and study no one will deny, for it relates to the very beginning of our existence, and is not inferior in importance to any other in the whole range of medical science. And it may here be observed of the many medical works and medical periodicals of the day that, although they abound in the most valuable, able, and

scientific disquisitions, dissertations, and communications upon almost every disease, etc., yet, notwithstanding, it can still in truth be stated that, with all the pathological inquiries of the day, the diseases of the fœtus are the least studied and investigated, and consequently are the least understood.

In the consideration of this very complex and difficult subject, the writer will confine himself chiefly to the plain results of observation, feeling too incompetent to enter into the wide field of speculation and conjecture concerning the hidden processes of nature, etc., which it yields, but the inutility of much of this is, indeed, already known and admitted.

It will at once be observed that this subject, in all its bearings, is too vast and complicated to be disposed of in a brief article; nothing but the most salient points, with the importance of their diligent study, can be strictly adhered to in it, leaving much to be sought for by the inquiring student in the very numerous theoretical and hypothetical works extant on this fruitful subject, a few of which will be named in the appended bibliography with the view to direct his inquiries by consulting original authorities.

The writer wishes it to be distinctly understood that this humble effort is only intended as a mere prelude to the more energetic study of the fœtal diseases, exclusive of the congenital abnormalities, solely for the purpose of their prevention or cure if possible; and he hopes that, so far as it goes, it may be found useful as such, and he further hopes that some genius may arise who will take up the treatment of fœtal diseases in a complete and systematic treatise, giving their nature, causes, pathology, diagnosis, and treatment, and thus lay the foundation at once of making the study of those diseases both attractive and profitable. The only recent work of the kind extant, so far as the knowledge of the writer extends, is that of the very excellent little work of Mr. Madge, of London, which was published forty years ago, and to which the writer is indebted for much he has to say upon this subject.

It is a well-known and established fact that most, if not all, the diseases of post-natal life may and do sometimes attack the fœtus *in utero*; that it is in danger of nearly if not the whole catalogue of human maladies—constitutional, idiopathic, epidemic, and accidental. Who has not seen some of these diseases which accompany the fœtus in its transit from intra-uterine to extra-uterine life? and who has not seen in such either ascites, hydrocephalus, pulmonary lesions, syphilitic and scrofulous eruptions, variola, hypertrophy of the liver, enteritis, peritonitis, proctitis, preternatural tumors, specific fevers, etc.?

It is, indeed, just as well known that children may be born sick, convalescing, or entirely recovered from former disease as that they may be born healthy. It is therefore obvious that it is not after birth only that the infant or the adult is liable to and experiences for the first time a succession of affections which may more or less afflict him in his future life. The origin of diseases may, however, be traced to a much more remote source, even to the very commencement of embryotic or fœtal existence; and in such

instances such diseases or their consequences may even accompany the fœtus into the world, unless previously relieved. The researches of Simpson, Rokitsansky, Cruveilhier, Billard, Velpeau, and others clearly show that the embryo is liable, besides arrest of development, to intra-uterine disease.

It may be proper to remark here that Aristotle, Hippocrates, Galen, Celsus, Paulus Ægineta, and some other ancients scarcely allude to diseases of the fœtus, but give much attention to the various fœtal vices of conformation which they attributed to the influence of maternal imagination.

*Classification.*—All the diseases of the fœtus may, for the sake of convenience, be distinguished into those which are derived from the parents, those which originate in and are peculiar to the fœtus and its membranes as a real organized entity, and those which arise from or are the result of accidents or other causes.

*Diseases transmitted by Both Parents.*—That some diseases of either of the parents may be communicated to the embryo is a fact long since established, and will not be called in question. The method, however, through which such affections are imparted, or are communicated to the embryo or fœtus, is not so well understood, and is still a subject of controversy into which it is not the object of this article nor the design of the writer to enter were he ever so desirous or capable.

*Diseases transmitted by the Father.*—It was once the opinion that the diseases of the father could not be imparted to the fœtus, but it is now well known that the embryo is liable to inherit the diseases of both parents. The actual diseases transmitted by the father to the embryo or fœtus through the ovum are syphilis and scrofula, which develop and manifest themselves during intra-uterine life. The exact method, however, in which the syphilitic virus finds its way into the constitution of the fœtus is a question to which as yet no satisfactory answer has been given and over which great obscurity still hangs. The student, however, should read on this particular subject the very able memoir of the French professor, M. Depaul.

It has been proved that men broken down in health by dissipation and debauchery, when married to sound and healthy women, were incapable of procreating living, healthy, and vigorous children. It is also well known that great fatigue, depression, intoxication, etc., on the part of the father, at the time of coition, have an injurious effect on the mental as well as the bodily development of the offspring.

*Hereditary Predisposition.*—The hereditary diseases most generally exist as predispositions to disease, which only develop and manifest themselves under favorable circumstances, not in intra-uterine, but in extra-uterine life. Mr. Allen Thomson, as quoted by Mr. Madge, says that "hæmorrhoids, hypochondriasis, scirrhus, apoplexy, hernia, catarrh, amaurosis, and urinary calculi may be mentioned as examples of diseases more or less directly transmitted as predispositions from parent to offspring."

It is unusual to find chronic and hereditary affections of the parents, with the exception of syphilis and scrofula, to manifest themselves very evidently in the fœtus; but the



chronic affections, without being hereditary, may so affect the fœtus *in utero* as to deprive it of healthy sources of nutrition, and in this manner induce or generate debility and disease.

Professor Hirschfeld, of Leipsic, on The Predisposition to Tuberculous Infection, says: "Inherited predisposition is strengthened by the fact that up to the present time the evidence of the direct consequence of the disease from mother to fœtus *in utero* has not been well established in the human species, although undoubted instances have been reported as occurring among certain animals. He relates a case in which a fœtus was removed from the uterus of a woman aged twenty-three years, within a few minutes after her death from general tuberculosis, without any damage being done to the placenta. Portions of the liver, spleen, and kidney of the fœtus produced tuberculous disease when inoculated into rabbits and guinea-pigs, but only in the capillaries of the liver could any tubercle bacilli be discovered. In the placenta, however, the villous spaces were crowded with bacilli. The very limited evidence of tuberculous material in the fœtus might serve as an explanation of the fact that children of tuberculous parents are often born without any manifestations of tuberculous disease during the first few years of life. A limited infection by the maternal bacilli, perhaps during the process of birth, might remain latent in one or more organs until other circumstances contribute to their development. It is thus possible that confusion may exist between 'latent tubercle' and 'tuberculous predisposition.' That latent tubercle may remain quiescent, especially in bronchial glands, until awakened by an attack of acute disease, such as measles or whooping-cough, is well known. The frequent occurrence of such latent tuberculous foci without any other evidence of tuberculous disease goes far to prove that resistance to tubercle is as powerful a factor as predisposition. The congestive influences of valvular disease of the heart and emphysema upon the connective tissues of the lungs are examples of some of the mechanical causes which constitute resistance" (*Medical Record*, October 10, 1881, p. 452. From *Wiener medizinische Wochenschrift*).

*Maternal Diseases affecting the Fœtus.*—Any disease whatever which affects the mother will, as a general rule, more or less affect the fœtus *in utero*; indeed, every disease, either acute or chronic, attacking the mother, by disturbing and deranging the uterine functions must consequently affect the fœtus, but it does not always result in the destruction of the fœtus, as many examples could here be given to prove the contrary. The maternal diseases or predispositions to disease which may affect or be communicated to the fœtus are either acute or chronic, or the mechanical pressure upon the fœtus by abnormal growths in the pelvis. In protracted cases of acute disease of the mother, in which the sources of nutrition are exhausted or dried up, the effect upon the fœtus must consequently be serious, if not fatal. In many of the acute or the chronic diseases of the mother it is often difficult to determine positively whether the disease of the fœtus in such a case is the result of the general disturbance of the mother, or whether the fœtus is affected by the very same disease of the mother. It may be proper

to remark here that there is a question among authors whether the fœtus *in utero* is injuriously affected or not by the scanty, poor living, and bad nourishment of the mother. While some maintain the former—that such condition of the mother must necessarily exert a pernicious influence upon the health of the fœtus—others again assert that it is not uncommon among the lower classes to find sickly and half-starved-looking women giving birth to plump, vigorous, and healthy children. Mr. Denman says that he found that women who emaciated during pregnancy bring forth healthier children and have easier labors than others, while with those who grow corpulent the children are generally small (*A Collection of Engravings tending to Illustrate the Generation and Parturition of Animals and of the Human Species*, folio, London, 1787). Mr. Ramsbotham considers that no system of diet of the mother would have any effect in controlling the growth of the fœtus *in utero* (*The Principles and Practice of Obstetric Medicine and Surgery*, p. 296, 8vo, London, 1841).

*Diseases which originate in the Fœtus itself.*—Can it be said to a certainty that some of the diseases of the fœtus *in utero* originate in primary disease in its own structures? Can it be maintained that the fœtus—with its external integument, its bony fabric, its internal conformation of viscera, muscles, arteries, veins, nerves, etc.—is, strictly speaking, not a part of the maternal system, but is in itself an independent organism, liable, like the various organs of our bodies, to its own derangements and diseases? And can it also be affirmed that the fœtus *in utero* has its own principle of life independent of the mother? These vital questions, the writer believes, may be safely answered in the affirmative. Who will deny that the diseases which are epidemic or contagious do not attack the mother and the fœtus as independent entities? The fœtus may be attacked and die, while the mother may escape, or *vice versa*. For instance, it is a well-known fact that when Asiatic cholera, prevailing as an epidemic, attacks the mother, the fœtus but seldom escapes; but it is not always certain how it is affected, whether by the terrible disease itself or by the exhausted state of the mother. What is very remarkable, however, it is also well known and stated upon the best authority that during an epidemic of cholera the fœtus has been destroyed by the disease while the mother has escaped it altogether. This is a positive evidence of the independent liability of the fœtus to epidemical diseases. It is stated upon the authority of Mr. Madge that it has been observed that both the mother and the fœtus, having intermittent fever at the same time, the paroxysms in the fœtus have been found, by tumultuous movements in the uterus, not to correspond with those of the mother, so that one may have a *quotidian* and the other a *tertian*, or both may have the same type of the disease, with paroxysms showing themselves on different days. In the *Edinburgh Medical Journal* of June, 1889, Dr. Felkin relates two cases in which he observed malarial paroxysms in the fœtuses of healthy women. He suggests the rather striking explanation that the malarial poison was introduced in the semen of the diseased father at the time of conception of the fœtus.

In one of the two cases, the mother, an English lady more than eight months pregnant with her first child, consulted him for "pain and a curious sensation in her abdomen." She said she had had several such attacks during her pregnancy, but they had never been accompanied by pain. The attack was sudden. On palpating her abdomen, Dr. Felkin distinctly felt the fœtus shaking. The next night, and again the next, the same thing occurred at the same hour. On the fourth night he found her again in the same condition. Labor had set in, the head presenting at the dilated mouth of the womb. As the pains became feeble and progress ceased, he put on the forceps and easily delivered the head. The body was extracted with difficulty, on account of the great distention of the abdomen by an enlarged spleen. The child lived, and, after seven attacks of ague, with cold, hot, and sweating stages, recovered health, the spleen returning to about its normal size. The mother of this child had never suffered from malaria in any form whatever; the father had experienced very severe intermittent and remittent ague attacks while living at a distant part of the country, and was suffering from them at the time of the conception of the child.

In the second case, a Scotch woman, seven months and a half pregnant, was ill with pleurisy and bronchitis and the effects of a beating which her husband had given her. At one of Dr. Felkin's visits the nurse told him that she had suffered on the previous night from "a pain and fluttering in her abdomen like a bad quickening." Being called the evening of the same day, at the same hour he found her in a condition very like that observed in the former case. Two evenings later, after another similar paroxysm, labor set in and the child was born before he could reach the house. Its abdomen was slightly enlarged. On the night after its birth it had a cold spell, with shivering, lasting half an hour, succeeded by a hot stage of two hours and a stage of free perspiration. The temperature during the attack ran up to 102.6° F. On the second night after its birth it died in the cold stage of a similar paroxysm. On post-mortem examination, the kidneys showed marked cloudy swellings in the epithelium of the convoluted tubules, the nuclei of the cells continuing to stain, while the surrounding protoplasm was highly granular. The nuclei of the glomerular cells stained distinctly. In the liver many leucocytes were seen to contain very numerous fine granules of a dark-brown color. The venous sinuses of the spleen were dilated. Dark pigment granules were observed in many of the leucocytes contained in the sinuses, as well as the endothelial cells lining them, and in the cells of the surrounding connective tissue. The mother of the child had never suffered from ague. She had three healthy children by her husband. He then went abroad and contracted severe malarial fever. Ten months after his return a feeble child was born which soon died. About a year later a second child was born, which was sickly and had an enlarged spleen. In these two pregnancies the mother had the same strange feelings, like quickening. Dr. Felkin thinks these cases show that malaria is a specific disease, due to a micro organism, which may be transmitted by the father to his offspring just as syphilis may be transmitted (New York Medical Record, July 27, 1889, p. 99).

It is known that enteritis during fetal life is by no means an uncommon occurrence. M. Desormeaux records the case of a child that at birth presented all the evidences of violent enteritis, but afterward recovered. He is of opinion that the congenital contractions and obliterations of hollow canals—such as the œsophagus, intestinal canal, anus, urethra, etc.—ought to be referred to the influence of

previous inflammation (*Dictionnaire de médecine de Paris*, tome xv, p. 403).

Peritonitis may occur during fetal life, and give rise to adhesions between the intestines and to effusion of lymph and serum into the abdominal cavity, and thus occasion malformations, if not the death, of the fœtus. Dugès relates the case of a new-born child in whom the abdominal viscera were found agglutinated by a yellow-colored and firm lymph. There were false membranes on the liver, the spleen, the bladder, etc. The epiploon was adherent to the intestines, which were firmly united into a mass, and were yellow, hard, and thick (*Recherches sur les maladies les plus importantes et les moins connues des enfants nouveaux-nés*, 8vo, Paris, 1821).

Rectitis is known to have attacked the fœtus *in utero*, and to have resulted in a convalescence of the parietes of the rectum.

Proctitis (inflammation of the anus) is frequently observed in new-born children. The writer himself has seen several such cases, which were evidently the result of previous inflammation.

Other instances of the effects of former inflammation in the intestines of newly-born children are related by the following authors:

M. Billard (*Traité des maladies des enfants nouveaux-nés et à la mamelle*, p. 444, 8vo, Paris, 1828).

Carus (*Lehrbuch der Gynäkologie*, etc., Band ii, S. 251, 8vo, Leipsic, 1820).

M. Cruveilhier (*Anatomie pathologique du corps humain*, tome ii, livraison xv, pl. xi, p. 2, Obs. 2, folio, Bruxelles, 1833).

Croup is known to attack the fœtus *in utero*, as several German authors declare.

Pertussis is also liable to attack the fœtus. Mr. Watson, in his *Treatise on the Principles and Practice of Medicine*, relates the following case of whooping-cough which he supposed existed before the birth of the child. He says: "My bed-maker's daughter in Cambridge had a child ill of whooping-cough in the house with her during the last week of another pregnancy, and the newcomer whooped the first day he came into the world."

Tænia, in several species, have been found in the intestines of the fœtus, and some authors have attributed to them the convulsions which the fetus seems sometimes to experience in the uterus. Hippocrates, Bremser, and Brendelius speak of worms in the intestines of newly-born children.

The writer has now enumerated a sufficient number of examples of diseases peculiar to the fetal organism for practical purposes.

*Injuries of the Fetus the Result of Accidents.*—The accidents of the enceinte mother, which may affect the health or the death of the fœtus, are blows on her stomach or abdomen, falls on her nates, or the various other falls with which pregnant women sometimes meet. The practitioner, however, will at once appreciate the cause and the character of these admitted accidents and act accordingly; consequently, it is not necessary to dwell upon this obvious subject.

*Ætiology.*—The ætiological origin or primordial cause of some of the diseases of the fetus *in utero* is not easy to discover; indeed, it is difficult sometimes to trace the causes and the *modus operandi* of some of the diseases even of post-natal life, and it is extremely so with regard to those of ante-natal life; hence these causes and their *modus operandi*, although of the greatest importance, are not as well understood as they should be or might be, even with their attending difficulties, but are still a subject of much speculation, and have been from time immemorial. It is, however, of the highest importance that the *fons* and *origo* of those diseases should, if possible, be known, for such knowledge would enable the practitioner to adopt suitable treatment through the mother, to arrest, to mitigate, or to cure the affection, and also to advise proper measures to avoid, ward off, or prevent some of these diseases. But, to repeat, it is not an easy matter to determine sometimes to what cause or causes some of these diseases of the fetus *in utero* should be attributed—at a period, too, when it is so completely protected, as it were, from all those influences from without which may and do produce such diseases after birth.

*Physical Diagnosis.*—It may truly be said that the diseases of the fetus *in utero* are to a considerable extent a sealed book, as it were, the causes of which may, however, be largely owing to the difficulty attending their diagnosis, which is principally derived through the mother, and the treatment of which must also pass through the same medium. Hence, in these instances our method of diagnosis differs entirely, being much more inconvenient, troublesome, and laborious, for we can neither see nor interrogate the patient himself, to know or to tell in a minute what the matter is. Another cause, however, why the fetal diseases are so much neglected, may be attributed to a general as well as a manifest want of interest in and an inclination to their study, etc.; consequently these diseases are, doubtless from the several circumstances already mentioned, generally neglected, and are only detected or revealed after birth; but they certainly are susceptible of being successfully studied and diagnosed, and in the same manner as are the diseases of the chest and abdomen, and by the same measures—namely, by palpation, percussion, auscultation, etc. These invaluable means, so greatly improved at the present day, when employed by an expert for this especial purpose, what might they not detect or reveal?

Upon the important subject of the auscultation of the fetus *in utero* the student should consult the very able *Traité d'auscultation du fœtus in utero*, by the French professor, M. Depaul, and also the excellent treatise of Mr. Kennedy (*Observations on Obstetric Auscultation, with an Analysis of the Evidences of Pregnancy, and an Inquiry into the Proofs of the Life and Death of the Fœtus in Utero*, 8vo, Dublin, 1833). A greatly improved edition of Mr. Kennedy's treatise was ably produced by Dr. Isaac E. Taylor, of New York, some years ago, but this 2<sup>nd</sup> edition, not being now in the possession of the writer, he cited as above the original work, which was before him.

*Treatment.*—When any disease of the fetus is detected the attempt should at once be made to cure or to mitigate

it through the mother. At the present day there is quite sufficient evidence to prove most positively that specific and general treatment are certainly capable of reaching the fetus through the mother's system; hence, by administering remedies to the mother, either per os, per rectum, by hypodermic injection, by cutaneous inunction, etc., the disease of the fetus may be cured, its health preserved, and its life saved. Upon the authority of Mr. Madge, M. Moreau related the case of an officer of the Royal Guard who, after having been apparently cured of an old syphilis, married a young lady in perfect health. In the first three confinements which followed, the children were dead. The anti-syphilitic treatment was then adopted, and the result was that in the three subsequent confinements the children were born alive and healthy.

Now, at the present time, with the numerous and valuable new therapeutical remedies, and their various scientific combinations and methods of application and administration, now made so available to us, we ought to be so much better able to grapple with the diseases of the fetus than were our predecessors of half a century ago.

*Preventive Treatment.*—In order to preserve the health and the life of the fetus, much may be accomplished by the adoption of judicious preventive measures. The health of both parents should strictly be attended to. The mother during the period of gestation should be separated from all those causes, both from without and from within, which might tend to disturb and impair the uterine functions. But how seldom is this attended to!

The writer will now conclude by repeating the hope that the numerous difficulties consequent upon this subject will be ultimately overcome, and that the diseases of the fetus *in utero* will form a part of strict medical observation and practice, for in point of interest it yields to no other.

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## AN ELECTRO-MAGNET

FOR THE EXTRACTION OF STEEL FROM THE INTERIOR OF THE EYE.

By ALVIN A. HUBBELL, M.D.

BUFFALO, N. Y.,  
PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY  
IN THE MEDICAL DEPARTMENT OF NIAGARA UNIVERSITY;  
SURGEON TO THE CHARITY EYE, EAR, AND THROAT HOSPITAL;  
OPHTHALMIC SURGEON TO  
THE BUFFALO HOSPITAL OF THE SISTERS OF CHARITY, ETC.

SEVERAL forms of the electro-magnet for the extraction of steel from the interior of the eye have been offered to the profession during the past fifteen years, and among them one which was made for me in 1884 and published in 1888.\* This magnet has, at my suggestion, been recently improved somewhat by George Tiemann & Co., of New York, and, as it seems to me to possess certain superior advantages, I venture to call the attention of the profession to it.

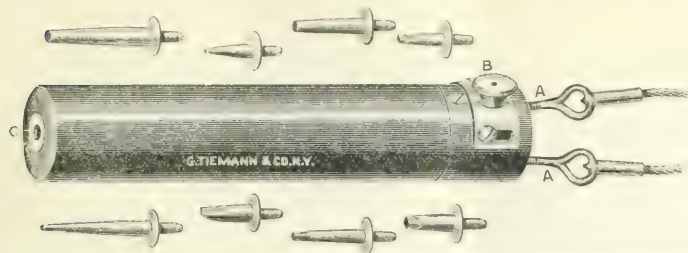
In its new form the core is solid soft iron instead of a bundle of wires, and the connecting posts are inclosed in a hard-rubber mold, which carries a device or slide by which the electric circuit may be closed when the magnet is being used, and opened when not being used. The insulated wire surrounds the core in eight layers, and this coil is incased by a light, hard-rubber jacket.

Some of the extension points have been squared or flattened at their ends, by which more surface of contact is presented and their holding power increased. The accompanying cut gives an excellent representation of the magnet and extension points in actual size as now manufactured by George Tiemann & Co.

The instrument is three inches and a half in length, including the connecting posts, the body being two inches and seven eighths long; it is a little less than three quar-

\* Buffalo Medical and Surgical Journal, July, 1888.

ters of an inch in diameter, and it weighs three ounces and a quarter. In power of attraction it seems equal to that of



Electro-magnet, actual size. A, A, ends of cords connecting magnet with battery; B, slide for opening and closing electric circuit through the coil; C, end of core tapped to receive extension points. Extension points of different sizes, lengths, and shapes are also shown in the cut.

the original one which, when connected with an ordinary single quart-cell battery, was found, by careful tests, to suspend thirty-one ounces of iron with an extension point a quarter of an inch long (measuring from the face of the magnet) and six thirty-seconds of an inch in diameter at its end; twenty-eight ounces, with one half an inch long and five thirty-seconds of an inch in diameter; twenty-four inches, with one the same length and four thirty-seconds of an inch in diameter; and eighteen ounces, with one the same length and three thirty-seconds of an inch in diameter.

The power of attraction diminishes very rapidly as the size of the point is lessened or its length increased. Therefore, in using the magnet, as short and large an extension point should be selected as is consistent with the case in hand. The length need never exceed three quarters of an inch. The points may be curved or straight and of any shape desired.

The electric circuit should always be opened by pushing the slide toward the end receiving the connecting wires when the magnet is not being used, as the current heats the wire of the coil if allowed to pass too long. The magnet can be used with any galvanic battery by not turning on too strong a current; but the manufacturers supply a cell suitable for the instrument.

The size, shape, and lightness of this magnet, the form of its extension points and their close proximity to the coil, and its great power of attraction, render it most convenient and reliable, and commend it, it seems to me, to the purposes for which such an instrument is desired.

212 FRANKLIN STREET.

## NASAL SEPTUM KNIVES.

By GEORGE W. MAJOR, M. D.

MONTREAL.

The accompanying woodcut will convey a clear and definite idea of the nasal septum knives introduced for the purpose of removing certain forms of crests or spurs frequently met with on the nasal septum.

These hooked knives (rights and lefts) are furnished with a chisel edge and are bent on their septal lateral aspect so

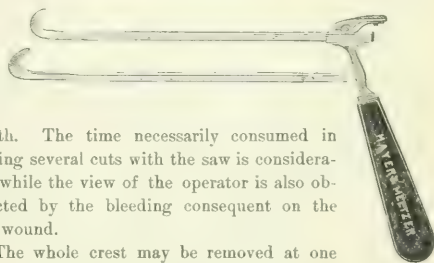
as to secure a satisfactory hold on the outgrowth at its posterior edge or margin. A firm and steady traction toward the operator will in the majority of cases sever the prominence.

A universal handle arranged with a lever and spring attachment can accommodate any number of knives varying in size, shape, and curvature.

These knives have been specially designed for that class of cases in which a long crest or spur is found running in a horizontal direction from before backward along the lower third of the septum narium near the floor of the nasal chamber. These out-

growths frequently occupy the septum throughout its entire length. These latter, composed of bony and cartilaginous tissue, vary in density at different points in their course.

Often, owing to vertical or oblique deflection, the line of the septum is somewhat irregular; under such conditions a nasal saw can not be so manipulated as to remove at one section this shelf-like prominence throughout its entire



length. The time necessarily consumed in making several cuts with the saw is considerable, while the view of the operator is also obstructed by the bleeding consequent on the first wound.

The whole crest may be removed at one sweep, if a properly selected knife is in the hand of one experienced in its use, in a few seconds without pain, while the whole procedure is under full control of the eye of the surgeon.

The operation is so speedily performed that bleeding does not occur until after the section is complete.

Some skill is requisite in the use of these septal knives, and if suitable cases for operation are selected the results will be satisfactory.

In nervous persons where the use of a saw or trephine is occasionally difficult and sometimes impossible, these knives will supply a long-felt need, in that the operation may be performed before the patient is aware of any attempt at interference.

In the cases of dense pyramidal outgrowths of bone of almost ivory hardness, found so frequently on the vomer near its posterior margin, these knives are *not* at all applicable. Recourse must be had to the slow process of sawing.

These instruments should be constructed of very good material, as the strain upon the hook is sometimes considerable, and it is essential that they should not be too bulky. The point of the knife should be *blunt*, so as not to wound

should the knife slip on traction, and the shaft should be so thin through from above downward as to be readily passed between the crest and the floor of the nasal chamber.

## OPIUM INEBRIETY.

CASE TREATED WITH CODEINE.

By J. H. KENNEDY, M.D.,

ALBANY, N. Y.

Mrs. A., aged thirty-seven, two children, youngest one month old, consulted me September 22, 1892, regarding her opium habit, she having used opium in some form several years.

It was first given when she was sixteen years old by a physician, himself addicted to it, used irregularly, and during the past six years taken steadily, reaching two ounces of laudanum daily.

Her ancestral record was faulty, and her physical condition bad. She told a story of long suffering from articular rheumatism, neurasthenia, neuralgia, dyspepsia, and middle-ear disease. What with her damaged physique and post-puerperal status, the outlook for success in treatment was not brilliant, but it was begun by giving a grain of morphine four times daily in lieu of laudanum, which she could not longer retain. In three weeks this was reduced to four eighth-grain doses a day. Meantime she had taken a triple tonic—quinine, strychnine, and arsenic—with coca wine, and forced feeding of most nutritious food, all of which, however, did not prevent decided reflex reaction.

At this juncture I asked the advice of Dr. Mattison, of Brooklyn, whose experience specially fitted him to give counsel in a case like mine. He gave me prompt reply, and in accord therewith my patient was at once placed on half-grain doses of codeine sulphate morning, noon, night, and bedtime, continuing the tonic and full feeding, with massage and as much open-air exercise as possible without fatigue.

In a week the noon dose of codeine was omitted; in another week the night one; after the third week the morning portion; and at the end of the fourth week that at bedtime. Bromide of sodium, twenty to thirty grains, once or twice daily, was sometimes used, and for the insomnia twenty to thirty grains of sulphonal worked well. The epigastric "goneness" was relieved by a drachm or two of alcohol in hot milk, and for the morphine craving, which at times was marked, nitroglycerin in hundredth-grain tablets on the tongue, hourly, three or four times, was used with success. Improvement persisted, and in seven weeks the patient had gained ten pounds, looked several years younger, and said she felt like her old-time self.

Five months have gone since the last dose of morphine was given, and Mrs. A.'s health is much improved, despite domestic surroundings not well fitted to enhance a good result.

This case was highly unpromising. The patient's physical condition was much impaired, her morale damaged, and her environment not conducive to success; yet against all these drawbacks success was secured.

I am of the opinion that had more time been taken for the morphine reduction, the attendant nervous discomfort would have been largely lessened, and should a similar case present I would make the rate of decrease not more than half a grain, and even less, a week.

There is no doubt that the lowered general health of this patient was a decided bar to rapid withdrawal. *Festina*

*lente* is the rule that should obtain where the inroads along somatic lines are marked; but when the reverse condition presents, total abstinence from opium can be reached and normal sleep secured under the codeine treatment, it is said, in from four to six weeks.

There is no question as to the good of codeine in these cases, and its advent in the treatment of morphinism marks a decided advance in the cure of this disease.

February 27, 1893.

## SPONTANEOUS CURE OF A PAPILLOMA OF THE NASAL SÆPTUM.

By JOHN DUNN, M.D.,

RICHMOND, VA.

In February, 1891, I was consulted by Mr. W., aged thirty, in regard to a nervous twitching of the right eyelid. In examining the nasal cavities to see if I could find any condition that might serve as a probable cause of this affection, I found on the left side of the cartilaginous septum, at its inferior portion, near the floor of the nose, about three quarters of an inch from the nasal entrance, a papilloma. In size it was about as large as the common white bean. Its surface resembled an ordinary skin wart that had "gone to seed," except, of course, that it was softer and had the pinkish color that the mucous membrane would naturally give it. Mr. W. had noticed it about three months previously, but, as it gave him no especial inconvenience, he paid no attention to it. It itched occasionally, and would bleed if he rubbed it too hard. He declined to have it removed. In February, 1893, Mr. W. a second time came to consult me. In examining his nose, I found that there was no trace of the papilloma to be seen. I asked Mr. W. if he had had it removed. He replied that, about three months after he had seen me, he was one day rubbing the growth in his nose with the tip of his little finger and the growth "fell off," since which time he had experienced no trouble with it.

Nasal papillomata are comparatively rare. Mackenzie says (*Diseases of the Nose and Throat*, p. 265): "I have met with only five undoubted examples of intranasal papilloma." Bosworth (*Diseases of the Nose and Throat*, Part I, p. 422): "My own records include something over two hundred cases of benign tumors of the nose, but one of which was a case of papilloma." A few other cases have been reported. The point of interest in connection with the above-reported case was the spontaneous separation, thereby showing the relation between this form of intranasal papilloma and the ordinary skin warts. And this fact may further explain why so few of these growths come under observation. In Mr. W.'s case there was no apparent accompanying nasal affection which might have acted as a determining factor in the causation of this papilloma. Nor would this case have come under observation had there not supervened an annoying twitching of the eyelid, with which the presence of the papilloma in the nose had nothing to do.

**The Kings County Medical Association.**—The next meeting of this society will be held on the 11th inst. The subject to be discussed will be the medical care of inebriates, to be opened with a paper by Dr. C. F. Barber and continued with papers or remarks by Dr. L. D. Mason, Dr. J. C. Shaw, and others.



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THE LESIONS AND SYMPTOMS OF CATARRHAL PNEUMONIA.

At the meeting of the Section in Pædiatrics of the New York Academy of Medicine, on March 9th, Dr. Francis Delafield, speaking upon the pathology of catarrhal pneumonia, referred to the close dependence of the symptoms of that disease upon the lesions. He said that it was a well-recognized fact that the ordinary form of that disease in children was catarrhal. In adults the lobar form was the rule, broncho-pneumonia being the exception, while in adolescents both catarrhal and lobar pneumonia were frequent. It had been satisfactorily proved that the same germ was concerned in primary broncho-pneumonia and lobar pneumonia. In secondary pneumonia a streptococcus was commonly the exciting cause. The lesions observed in broncho-pneumonia were of two distinct sorts, essential and accessory. The essential lesions were few in number. The inflammation present in broncho-pneumonia involved the walls of the bronchioles and the air spaces immediately surrounding them. It was necessary for a complete understanding of pneumonia as it appeared in the child that the difference between these lesions should be fully appreciated. Its most characteristic feature was the fact that it was not only exudative, but productive in character. Formation of new tissue was the invariable result of this kind of inflammation. Of the various accessory lesions, general catarrhal bronchitis was the most frequent and important. It was hard to do away with the idea that catarrhal pneumonia could be present without bronchitis, but that was the fact. Consolidation of lung tissue due to exudative pneumonia was also an accessory lesion. Atelectasis was frequently present in limited areas, but was by no means essential to the disease. The same was also true of fibrin on the pleura and dilatation of the bronchi. Infiltration of the bronchial glands was also a frequent but not an essential lesion. One or all of these accessory lesions might be present in any case. In rare instances the essential lesions only were present.

The physical signs in the course of the disease could be explained in a striking way by a study of the lesions. If the essential lesions only were present, the only sign of pneumonia would be rapid and imperfect breathing. Râles and consolidation would not be present. Most physicians were willing to acknowledge this fact theoretically, but practically the average physician was not satisfied with his diagnosis until he observed râles and evidences of consolidation. If accessory lesions were also present, the signs and symptoms were modified accordingly. When fibrin was present, crepitant râles would be heard; if bronchitis, moist râles; if consolidation had occurred, bronchial breathing and dullness would be detected. If the consolidation was diffuse, physical signs might be lacking for days

or weeks. An exudative inflammation tended to rapid recovery; a productive inflammation was slow and lingering, and complete recovery did not quickly take place. This was the history of croupous and catarrhal pneumonia. The one was rapid in its course, and recovery was, as a rule, complete. The other was slow in its course, and was not infrequently followed by a partial recovery. Cough and expectoration continued long after the active symptoms had disappeared, while the physical signs persisted in the chest, owing to the formation of connective tissue.

Dr. J. E. Winters referred to the fact that the early diagnosis of pneumonia in young children must usually be made by rational symptoms rather than by physical signs. The disease was almost invariably secondary to bronchial catarrh, and when the diagnosis of capillary bronchitis was made pneumonia was already present. Physical examination of the chest during the first few days was usually of but little assistance. It was common, however, to find very fine râles over limited areas long before evidence of consolidation could be elicited. Of the rational symptoms, the cough was one of the first evidences of pneumonia. It was inclined to change from the ordinary cough of bronchitis to a short, hard, dry hack, and was frequently painful. If the child feared to cough or appeared to have pain when coughing, it was suggestive of pneumonia. Increasing elevation of temperature was also an important symptom. The respiration frequently became distinctive, the inspiration and the expiration being prolonged and often sighing. The respiration was labored in its character, and recessions at the base of the chest usually occurred. The child was uncomfortable when lying down and insisted upon being raised erect. Apathy and listlessness were very characteristic of pneumonia. A child who had resisted examination would become passive and examination could be made with readiness. A careful history should be elicited in every suspected case, and often proved of great assistance in reaching a diagnosis.

THE RADICAL CURE OF INGUINAL HERNIA.

DR. WILLIAM S. HALSTED, professor of surgery in the Johns Hopkins University, gives, in the *Bulletin of the Johns Hopkins Hospital* for March, an account of the first eighty-two cases of hernia operated on at the hospital. The operation for the radical cure of inguinal hernia performed by him was that described by him more than three years ago in the first number of the *Bulletin*. The description of the operation of Bassini, of Padua, nearly identical with Dr. Halsted's, was published six or eight months later. Bassini's article included a report of two hundred and fifty operations with only seven relapses and only one death (on the fifteenth day, by pneumonia, and after the wound had healed *per primam*). The points of difference between the two procedures are chiefly in the management of the spermatic cord. Bassini theoretically seeks to re-establish the inguinal canal, through the middle of which the cord passes. Halsted looks upon such a theoretical purpose as a kind of limitation of the operation, since it is not always best to transmit the cord

through the so-called new "internal ring." The point at which the author gives exit to the cord is governed by the state of the muscular walls at or near the internal abdominal ring. If the walls in that locality are attenuated and present thin edges, the transplantation is better made lower down. Halsted also seeks to reduce the size of the cord by excision of the superfluous concomitant veins. This is not an object in Bassini's operation.

During three years and a half since the opening of the Johns Hopkins Hospital, Dr. Halsted and his associates have had eighty-two radical operations for hernia and no deaths. Sixty-four of the patients were males, and all had inguinal hernia save one. Halsted's operation, with or without modification, was performed on fifty-eight patients. When the wound has healed by first intention in these cases there has been no recurrence. When the wound has suppurated, it has been laid open immediately and allowed to heal by granulation. The number of recurrences, where this latter condition has obtained, has been six; not all the cases could be traced in order to ascertain their later condition; not all have been performed at a sufficiently remote date to furnish undeniable data of success or the want of it; not all of the wounds openly treated have been the occasion of failure to relieve the patient. Of five of the males who were operated on by Dr. Brockway by the McBurney method, two are known to have had recurrences. The time has now come, thinks Dr. Halsted, when the surgeon can speak more confidently of his hernial work and may use the word "cure" in regard to that more fortunate series of cases where the wound heals kindly and by first intention. To have been able to record eighty-two reconstructive abdominal operations without one fatal accident is no mean accomplishment. It is a feat creditable alike to the surgeons and to their rising institution. As to the question of what the number of undeniable successes in the series was, more time is required to take the count; but it is not too early to predict that the proportion of successes will prove to be a high one.

### MINOR PARAGRAPHS.

#### THE REMOVAL OF A TUMBLER FROM THE VAGINA.

In the *Wiener klinische Wochenschrift* for March 2d Dr. V. Bazzanella, of Innsbruck, relates the case of a woman, forty-four years old, the mother of three children, to whom he was called in August, 1892, on account of severe sacral pains that had come on suddenly after a mountain tour. He found that her vagina harbored a drinking-glass, and she told him that it had been placed there ten years before by her husband, who, being about to obtain a divorce, was resolved that no other man should have connection with her. When she had carried the glass for about four years a physician tried to remove it, but failed. Dr. Bazzanella found its mouth situated about two centimetres within the introitus vaginæ and its base lying against the cervix uteri. There was a dirty, foul discharge from the vagina, and some fetid gas escaped during the examination. Projecting into the glass there was a granular, fungous, tumor-like outgrowth from the vagina. This was crushed away, and then the glass was extracted with a small obstetrical forceps between the blades of which a napkin was

stuffed in such a fashion as to include the fragments in case the glass should break. The vagina was irrigated and drained with strips of iodoform gauze for a few days, and the patient was then able to be out of bed. Several superficial ulcerations of the vaginal wall had been found, and perforation of the recto-vaginal or vesico-vaginal septum was thought to have been imminent at the time the glass was removed. The glass was eight centimetres in height, and measured seventeen centimetres and a half in circumference at its base and twenty centimetres and a half at its top.

#### INTESTINAL WORMS.

It has been said that the ideas of some physicians upon diseases of children are summed up in three terms—teething, worms, and water on the brain. The first of these has in recent years been relegated to a position of minor importance in ætiology, and the second has fallen sadly into disrepute. It is possible that in former times intestinal worms were more prevalent than at present. In some regions, perhaps, they are still prevalent, but in New York they are so infrequently seen as to cause much wonder that they should have attained so much importance in public estimation. It is certainly a fact that proprietary vermifuges still have a very large sale. In the *Lancet* for February 11th Dr. Henry Alston vigorously combats the doctrine that worms cause death by reflex irritation. He points out the necessity of excluding various pathological conditions and of examining the brain before the idea of reflex irritation from worms can be rationally accepted in any given case. The difficulties surrounding a belief in reflex irritation from this cause are numerous. Only by a careful autopsy could it be proved that such irritation of the intestinal tract had not been caused by scybala or foreign bodies. Strong purgative medicines congest and irritate the intestinal mucous membrane to an extreme degree, but death from reflex action does not follow. In intussusception also great irritation of the mucous membrane occurs, but reflex convulsions are not the cause of death. We should expect that diarrhœa would be a marked symptom, but constipation is very frequent, perhaps the rule. Opinions differ as to the number of worms required to produce serious results. Certainly the passing of one or two worms should not be considered sufficient explanation for serious digestive disturbances or nervous symptoms.

#### A HASTY ASSUMPTION OF CRIMINALITY.

We print elsewhere in this issue an authentic summary, mainly from the stenographic report of the inquest, of the case of a physician of good standing, a member of the Medical Society of the County of New York, and a contributor to the *Journal*, who, as will be found stated, was twice arrested upon the 17th of January last, imprisoned, and held to bail upon charges of criminal abortion and manslaughter. The news was widely circulated by the daily press at the time. For some six weeks he remained under this accusation. On the 6th of March, however, after an exhaustive hearing before Coroner Jessemer and a jury composed entirely of medical men, and comprising some of the most eminent gynæcologists of New York, with Dr. Paul F. Mundé as foreman, the charges were admitted by the public prosecutor to lack the slightest particle of proof, and the doctor was acquitted by a verdict of unusual fullness and emphasis. We believe the summary, which is, as far as possible, chronological, will readily enable the reader to place the responsibility for the hardship and injustice borne by Dr. Reid. The case should be of great interest to medical men, for it furnishes a striking illustration of the alarming ease with which

official carelessness, either of word or of act, may endanger and perhaps irretrievably impair the professional interests and the reputation of the most respectable physician in the community.

#### TOLYPYRINE.

This is the name of a new antipyretic and analgesic that was brought to the notice of the Berlin Medical Society recently by Dr. P. Guttman. From the report published in the *Mercredi médical* for March 15th it appears that tolypyrine differs chemically from antipyrine by the substitution of  $\text{CH}_3$  for an atom of hydrogen. It forms colorless crystals which melt at from  $136^\circ$  to  $137^\circ$  C., have an acrid taste, and are soluble in alcohol and in ten parts of water, but insoluble in ether. With perchloride of iron and nitric acid it shows the same color reactions as antipyrine. As an antipyretic it has been used in typhoid fever, pneumonia, erysipelas, scarlet fever, etc., to the extent of a drachm in twenty-four hours. The size of the individual doses and the frequency of their administration are not mentioned. It lowers the temperature gradually, and the reduction continues for about six hours; at the same time the pulse is slowed and free perspiration shows itself. It seems to be almost specific in mild cases of acute articular rheumatism; in severe cases its action is slower and it stands about on a par with sodium salicylate and antipyrine. It is no less efficacious than antipyrine in headache and neuralgia.

#### THE RELATION OF SWELLED TESTICLE TO GONORRHOEA AND TO MUMPS.

At a recent meeting of the *Société de dermatologie et de syphiligraphie*, a report of which is published in the *Union médicale* for March 14th, M. Barthélemy read an account that had been sent to him by M. Bogdan of a case in which a violent gonorrhœa had been suspended for ten days by an attack of pneumonia, and had shown all its previous severity on the subsidence of the pulmonary inflammation. M. Barthélemy added that he himself had observed cases of the interruption of gonorrhœa by typhoid fever. One of his patients had died, but another had been attacked with violent orchitis on the seventeenth day, although he had not left his bed. Several cases of the same sort, together with others of the opposite kind in which excessive exertion had failed to give rise to orchitis, had led him to doubt the theory that swelled testicle was caused by simple propagation. The state of the parts was no doubt a factor in the production of this complication, also the condition of infection, as in mumps, in which disease he had lately observed orchitis preceding the parotid affection by four days, and that, too, without any previous gonorrhœa.

#### SPONTANEOUS CLOSURE OF A RUPTURE OF THE UTERUS.

In the *Centralblatt für Gynäkologie* for March 18th there is a summary of an account by Dr. Richter, published in the *Deutsche medicinische Wochenschrift*, 1892, No. 45, of a case of labor in which sudden collapse occurred, followed by cessation of the pains and the manifest presence of fetal parts immediately beneath the abdominal wall. The case had been under the care of a midwife, and her story was that when the collapse had come on the head had been well advanced in its descent. Nevertheless, the vagina was found empty. Version was performed. Extraction of the head was difficult, and the child was deeply asphyxiated. The placenta, which was lying loose in the uterus, was removed with the hand, and then there was found a rent in the uterine wall, situated anteriorly and to the left, through which three fingers could be passed. No

irrigation was employed, but a sand-bag was applied to the abdomen. Ergot was given in fifteen-grain doses—three doses in all—and fifteen drops of tincture of opium were administered three times a day. The case ended in recovery.

#### ARSENIC IN CHOREA.

Discussing the uses of arsenic, Dr. William Murray, in the *Lancet* for February 25th, makes a statement that will somewhat surprise American physicians. He says that little stress has been laid on the efficacy of arsenic in large doses in chorea. That use of the drug is a well-established plan of treatment in this country. It is the common teaching that arsenic is of but little value until its physiological effects have been obtained. It is now the universal custom to carry its administration to that point, and even to restrain its action upon the bowels by small doses of opium. The dose should be regulated according to the symptoms and the tolerance of the patient. The author insists upon giving fifteen-drop doses of Fowler's solution for several days; ten drops, he says, will not answer. No fixed rule can be adopted for the use of this or any other drug. It must be administered according to the age and tolerance of the patient. If taken with food in the middle of the meal, it rarely causes digestive disturbance even in very large doses.

#### CINCHONIDINE IN THE TREATMENT OF MALARIAL FEVERS.

The *Nouveau Montpellier médical* for March 1st contains an article on The Treatment of Intermittent Fevers with Sulphate of Cinchonidine, by Dr. H. Villard, of the Montpellier hospitals. His conclusions are as follows: Cinchonidine sulphate overcomes attacks of intermittent fever quite as surely as the salts of quinine, and in the same doses; in addition, it exerts a very favorable action upon the anemia and visceral engorgements of paludism. The attack yields to it a little less rapidly than to quinine. He has usually employed cinchonidine in fifteen-grain doses, but thinks there is no objection to giving from eighteen to twenty-two grains. The unpleasant effects of cinchonidine are less pronounced and less frequent than those of quinine. The cheapness of cinchonidine goes far to compensate for its slight inferiority to quinine in rapidity of action.

#### BROWN-SEQUARD INJECTIONS IN TRICHOPHYTOSIS.

At a recent meeting of the Lyons Society of the Medical Sciences, reported in the *Mercredi médical* for February 22d, M. Angagneur stated that he had been led by the fact that the *Trichophyton tonsurans* did not grow on persons who had reached puberty to the idea that the modification of the tissues incident to the evolution of the genital organs might be induced by injections of testicular juice. With this notion in mind, he had practiced a great number of such injections in his service at the Antiquailles, and the children, for the most part puny and miserable, had been much improved in their general health; as to their local disease, it had been pretty frequently noted that there was a mitigation of its manifestations. This is indeed a roundabout way of attacking a parasitic skin disease; perhaps it would have met with the approval of the late Sir Erasmus Wilson.

#### THE INDUCTION OF LABOR BY INJECTING GLYCERIN INTO THE UTERUS.

Dr. C. PEIZER (*Archiv für Gynäkologie*, xlii, 2; *Wiener klinische Wochenschrift*, March 23, 1893) recommends the induction of premature labor by passing a soft catheter into the cavity of the body of the uterus, between the uterine wall and



the fetal membranes, and injecting through it about three ounces of glycerin, whereby gradual separation of the membranes is effected. The glycerin is kept from flowing out by causing the woman to maintain the knee-elbow or Sims's posture. Powerful pains come on in from half an hour to an hour and a half. The method can be carried out aseptically, and is less disturbing to the parturient organs than puncture of the membranes. Air-embolism has not been observed as a consequence of its employment.

#### THE ETIOLOGY OF RÔTHELN.

OPINION in England still seems to be somewhat divided as to the etiology of rôtheln. Goodhart and others have expressed a doubt as to whether it is an independent disease. Dr. Donald Hood, as reported by the *British Medical Journal* for March 18th, recently read a paper advocating the view that rôtheln and measles were due to the same contagium, assuming different degrees of force and intensity, and being profoundly modified by the different states of "soil" and environment. This view was combated by Sir Andrew Clark, Sir Dyce Duckworth, Dr. Pye-Smith, and others. The evidence adduced by Dr. Hood certainly seems insufficient to disprove the opinion now generally accepted that rôtheln is a distinct entity and entirely independent of measles.

#### A TUMOR ATTRIBUTED TO A FOREIGN BODY.

At a recent meeting of the Rouen Society of Medicine, reported in the *Normandie médicale* for March 1st, M. Bataille gave an account of a tumor, as large as an orange, which he had removed from just above the fold of the groin in a man sixty years old. He had taken it for a sarcoma, but, on cutting it open, its substance was found to be purely of inflammatory origin and appeared to have formed about one of the branches of a shell hair-pin that was found in it. As there was not the slightest scar to be seen, it was thought probable that the man had swallowed the foreign body, and that it had made its way through the intestinal wall in the inguinal region and become lodged in the subcutaneous tissue.

#### CHLOROBROM.

This is the name given by Professor Charteris, of Glasgow, to a solution each ounce of which contains thirty grains of chloralamide and potassium bromide. In the *Lancet* for March 18th Dr. John Keay, medical superintendent of the Mavisbank Asylum, Edinburgh, commends its action as a hypnotic in melancholia and allied mental conditions, but says he has not been encouraged to persevere with its use as a sedative in the excitement of mania, general paralysis, or epilepsy. Its action, he thinks, resembles that of paraldehyde when given along with bromidia or a bromide. An ounce of the solution may be given an hour before bedtime. If there is much excitement as much as an ounce and a half or two ounces may be used with safety.

#### THE TREATMENT OF CANCER.

THREE papers of great value relating to this subject were read at the recent meeting of the Medical Society of the State of New York, and now appear as consecutive articles in the April number of the *Annals of Surgery*. The first, On the Value of Internal Medication in the Treatment of Malignant Disease, is by Dr. Jarvis S. Wight, of Brooklyn; the second, The Use and Place of Caustics in the Treatment of Cancer, is by Dr.

Daniel Lewis, of New York; and the third, The Domain of the Knife in the Treatment of Carcinoma, is by Dr. Nathan Jacobson, of Syracuse.

#### HAMAMELIS IN PAINFUL VARICOCELE.

*Nouveau Montpellier médical* for March 11th contains a note by Dr. P. Gilis on the internal use of *Hamamelis virginica* in cases of painful varicocele. Twenty drops of the tincture are added to about six ounces of distilled water, and the whole of this mixture the patient is to take, in tablespoonful doses, in the course of twenty-four hours. He is also to bathe the scrotum with cold water night and morning and wear a suspensory.

#### RHIZODONTROPY.

This name has been given to the operation of drilling through the alveolar process to the tip of the diseased fang and removing the necrosed portion in cases of alveolar abscess. The word has recently become current in a misspelled form—that of *rhizodontrophy*—and we do not wonder that the *Medical News* finds the etymology of this spurious form difficult to understand.

#### LIGATION OF THE INNOMINATE AND CAROTIDS FOR SUBCLAVIAN ANEURYSM.

A CORRESPONDENT living in Dublin, Ireland, who dates his communication March 22d, informs us that Dr. Coppinger's case of ligation of the innominate and carotid arteries for subclavian aneurysm is thus far (up to the seventy-second day after the operation) successful.

#### THE PENNSYLVANIA MEDICAL EXAMINERS BILL.

We are glad to learn that the prospect is good of the enactment of a good medical practice bill in Pennsylvania, similar to the one in force in New York.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 4, 1893:

DISEASES.	Week ending Mar. 28		Week ending Apr. 4	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	5	2	9	2
Typhoid fever.....	17	6	16	6
Scarlet fever.....	172	13	177	12
Cerebro-spinal meningitis....	13	9	17	10
Measles.....	96	4	131	8
Diphtheria.....	115	41	104	47
Small-pox.....	9	3	15	1

**A Case of Alleged Criminal Abortion: the Consequences of a Hasty Assumption.**—On December 22, 1892, S. J., a dressmaker, aged about twenty-eight, single, came to Dr. Adrian Y. Reid, complaining of bearing-down pains in the hypogastrium. She stated that her menses were some five weeks overdue, and that she had already thrice visited a physician, who had prescribed to bring on the flow, but had used no instruments upon her. The nature of the medicines which she had taken could not be ascertained. She simply blushed when asked if she had been "exposed."

The rational and other symptoms, which were completely canvassed, and examination, digital and with the speculum, failed to show anything inconsistent with her statement that she was suffering simply from irregular menstruation. The womb, on palpation, was found slightly enlarged, but the os was of normal outline and consistence and

the mucous membrane of the vagina of a rose tint; a small drop of dark, grumous blood was oozing from the cervix, but still within it. There was no sign of sepsis. Dr. Reid directed the discontinuance of the medicines then being taken, prescribed an anodyne and complete rest for several days and the use of carbolyzed douches of warm water if the apparently coming discharge should prove foul or disagreeable, and instructed the patient to call again if she had not recovered by that time.

Fourteen days afterward, on January 5, 1893—a stormy and inclement day—she again presented herself, slightly paler than before, and with a six or seven days' vaginal discharge, which had been offensive from the beginning. Digital examination disclosed a decided septic odor, and there was a fetid mass, somewhat larger than a hazel-nut, protruding from the os. Home treatment being manifestly necessary, the patient was visited there within two hours. Examination failed to disclose any symptoms of peritonitis or constitutional symptoms of septicæmia. The usual antiseptic precautions having been taken, the fetid mass alluded to was removed by gentle manipulation; it seemed to be part of an ovum. The uterine cavity was carefully scraped clean with both sharp and blunt curette, putrid membrane and blood-clots coming away, and then washed with a bichloride-of-mercury solution (1 to 4,000), and packed with iodoform gauze. The patient was put to bed, complete rest was enjoined, and tonics and an invigorating diet were prescribed. Upon the 6th the packing was removed. All trace of sepsis was gone and the general condition of the patient decidedly improved. On the 7th the discharge was of simply lochial appearance. The parts were daily douched with five-per-cent. carbolyzed solution. This general treatment was continued till the 10th, when the patient was well enough to dispense with further personal attendance, and she was discharged with instructions to douche twice daily with carbolyzed solution, and to maintain complete rest for several days. Elixir of phosphates of iron, quinine, and strychnine (Wyeth's preparation) was also prescribed.

The patient lived alone. During the course of the treatment she was frequently admonished to procure a nurse, always promised to do so, but never had one, except on one or two occasions, when a female friend remained a short while with her.

On the 14th Dr. Reid was again called, found the patient in bed, with a temperature of 102°, pulse 98, slight hypogastric tenderness, but no tympanites. She admitted that she had violated the doctor's instructions, had not rested, but had done her housework, scrubbed, and had gone into the hall, all in her stocking feet. This was during the coldest days in the January cold spell.

There was a slightly septic vaginal discharge. The womb was gently scraped with a blunt curette, but disclosed a smooth, uniform interior, with no focus of sepsis. It was washed with bichloride-of-mercury solution and packed as before. An anodyne was prescribed for present pain, and a carminative of equal parts of compound tincture of cardamom seed and aromatic spirit of ammonia; in addition, topical applications of equal parts of flaxseed meal and mustard were ordered, to be followed by flaxseed-meal poultices with ground poppyheads; quinine in three-grain doses as a tonic, and turpentine stapes in case of tympanites. Absolute rest was directed, and the patient was strongly advised to enter a hospital at once. To this she demurred, and again promised to procure a nurse.

On the 15th the symptoms of peritonitis were aggravated. There was tympanites, with increased tenderness over the whole abdomen, a temperature of 102°, and pulse of about 104. The packing was removed; all trace of sepsis had disappeared from the uterus; it was washed with the carbolyzed solution and left unpacked. The patient was now peremptorily urged to go to a hospital, agreed to do so, and chose the Roosevelt Hospital. Her choice was approved of by the doctor, and she promised to send at once for an ambulance.

She did not keep her promise, however, for on the 16th the doctor was again summoned, and found her very tympanitic, and with a temperature of 103° and pulse of 116. The womb was found still aseptic, and was again washed with the carbolyzed solution. The patient was strongly chided for not having kept her word, and now promised more positively to do so; whereupon the doctor wrote and left with her, for delivery to the hospital authorities, the following letter:

"PHYSICIANS, Roosevelt Hospital.

"S. J., of — East Forty-fifth Street, is suffering from peritonitis following abortion—natural I believe—and is without proper care. She is able to pay something for your care, and at her desire I have recommended her to enter your hospital. I've found it necessary to scrape the womb twice, and wash it out each morning for a week. She has been indiscreet in being up and around immediately after her abortion, and not having the chills and other symptoms of septic peritonitis, I regard hers as idiopathic or catarrhal.

"Trust you may send for her at once and give her your best care.

"I am, yours respectfully,

A. Y. REID, M. D.

"104 LEXINGTON AVENUE, January 16, 1893.

"P. S.—Besides being treated antiseptically, she has had elixir, phosphorus, quinine, and strychnine, two- and three-grain pills of quinine, every three or four hours. Morphine to relieve pain, hot topical applications; freely nourished by beef-tea, mutton, gruels, etc."

He directed that he be sent for if the patient was not speedily removed. She was all this time perfectly rational.

The letter was duly received at Roosevelt Hospital, and an ambulance was sent for her at once; but, as the hospital had at the time no facilities for the proper treatment of the case, the ambulance surgeon, Dr. Stone, notified the police of the case, and the patient was admitted to Bellevue Hospital at 7.55 p. m. There she came under the personal charge of Dr. W.

The policeman who called the ambulance at once reported the fact at his precinct station house, and Joseph O'Donohue, an officer on detective duty, called at about 9.30 on the same evening at the hospital, to investigate the case. Here, according to his testimony, he met Dr. W., who "told me it was a criminal abortion, and he told me that if I arrested the doctor he would help me out with it—that there was too much of that carried on now."

The detective conversed with the patient, Dr. W. being present. In answer to O'Donohue's questions, she declared, in substance, that one W— was "the cause of her trouble"; that a girl whom she met on Lexington Avenue had recommended her to Dr. Reid, whose residence she gave to O'Donohue as nearly as her memory served; and that he had treated her, and had used an instrument on her, which she did not describe.

Upon Dr. W.'s statement and the declarations of the patient, O'Donohue sought Dr. Reid that night to arrest him, but failed to find his address. The next morning (the 17th) he again visited the patient, and asked her as to the truth of her statement of the night before. She now declared that it was not true. The officer thereupon left word for the coroner to take a statement from the patient, put under arrest W—, above mentioned [not Dr. W.], who had come to the station house to learn her condition, and obtained from Dr. W., for production at court, a written certificate, signed by him, as follows: "This is to certify that S. J. is suffering from peritonitis, and is not" [*sic*] "in condition to forbid removal from the hospital. Her condition is very critical, the result apparently of criminal abortion."

Armed with this certificate, O'Donohue and another detective, in company with W. [not Dr. W.], proceeded to Dr. Reid's house, where they arrested him between two and three o'clock in the afternoon. On inquiry, the doctor was told that he was charged with a criminal abortion upon S. J.; that she had made the charge, and that he had a certificate from the attending physician to the same effect. Dr. Reid thereupon expressed his surprise, and promptly "denied performing any abortion at all. He stated that the girl came to him suffering from, I think, some womb trouble, and he examined her, and used instruments to scrape her womb, and he said that he would do the same to-morrow if anybody came suffering in that condition to him"; that she had previously been treated by another physician, and that he was a law-abiding citizen and would go with the officer, which he did. He was at once arraigned in the Yorkville Police Court, before Justice McMahon, to whom he made a fuller statement of his action in the case. In answer to a question, he informed the justice that he was a member of the County Medical Society. The justice paroled him, directing the officers, after the doctor's departure, to rearrest him in case of the girl's death.

Immediately upon his release Dr. Reid went to Bellevue Hospital to learn the ground of the charge against him. For this purpose he in-

quised by Dr. W., with whom he had an extended conversation, detailing to him his treatment of the case. Dr. W. said that he knew of nothing that should have led to his arrest, and that he [Dr. W.] had done nothing that should have caused it.

At 6.10 P.M. that day, according to the official record, the patient died. *She had made out a simple statement accessible as evidence in a court of justice.* At about eight o'clock, without any additional evidence, Dr. Reid was again arrested at his house by the same officers. He was permitted to send for a neighboring friend to accompany him for the purpose of bail, and was then taken to the police station, where he was formally charged with a felony, based upon the statement of the deceased and the certificate of Dr. W., which was exhibited to him. Bail was offered and refused, both at the station house and by the justice, to whose residence the friend above mentioned had been immediately dispatched. The doctor, after giving up several articles from his pockets, was taken to a cell in the prison. The night was very cold. The cell contained only a hard bench, with no covering. With much difficulty permission was obtained to have some bedclothes sent from the doctor's house, for warmth rather than sleep.

Next morning (the 18th) he was again arraigned in the police court before Justice McMahon and informed that he was now charged with manslaughter. After considerable delay, owing to counsel's absence, the judge, without hearing the case, referred it to the coroner, saying that if it came back to him he would dismiss it. Between twelve and one o'clock Dr. Reid was arraigned before Coroner Schultze, who, without making investigation, announced his intention of holding the doctor at once for the Grand Jury and the Court of General Sessions, on the ground that "the case was Coroner Messemers's." Counsel attending for Dr. Reid asked that at least, instead of that course, the case be referred back to Coroner Messemmer. The matter hanging in this posture of uncertainty, Dr. Reid interposed and personally made to the coroner the oft-repeated statement of his medical treatment, whereupon bail was accepted in the sum of \$2,500, and he was at last set at liberty, W. [not Dr. W.], arraigned at the same time, being held in custody.

The autopsy on the body of the deceased was made that same day, at about 4 P.M., at the Morgue, in the presence of Dr. Frank Ferguson, of the New York Hospital and the New York Post-graduate Medical School, Dr. Donlin and Dr. O'Hare, coroner's physicians, Dr. Reid, and Dr. H. P. Loomis, who attended at Dr. Reid's desire. The manual work of the autopsy was performed by Dr. Loomis, at the request of Dr. O'Hare.

Upon opening the abdominal cavity, the existence of general purulent peritonitis was at once apparent. There was a large quantity of pus upon the surface of the viscera, which floated in probably two gallons of sero-purulent fluid. There was a general agglutination of the organs within the cavity, which was, however, easily broken through by the hand of the operator. The mesenteric vessels were enlarged and of a purplish hue, the stomach and intestines, and particularly the vermiform appendix and cæcum, were carefully examined, but no possible channel for septic infection was there found. The connections of the womb were severed close to the pelvic walls, the vagina being cut across about an inch below the cervix, and the womb and appendages were taken in hand and subjected to careful scrutiny. Externally the womb, though slightly enlarged, was of normal post-mortem color. Internally no trace of sepsis was discovered; the os was slightly dilated, its margins were perfect, with no evidence of disease. The uterine walls had been thoroughly scraped—the left side about twice as deeply as the right. *The most careful examination showed no sign of puncture or laceration in any part of the womb or vagina or elsewhere.* The right Fallopian tube was somewhat enlarged in caliber and thickened in its walls, open at the fimbriated and closed at the uterine extremity, and contained a small amount of pus. The left tube was closed at both ends, and sacculated about midway. Upon incision, it gave forth about a teaspoonful of pus. The ovaries were enlarged to about twice their natural size, and upon incision presented throughout their stroma small collections of pus. *It was the opinion of all present that there was no evidence of abortion.* The deceased had evidently suffered from endometritis, salpingitis, and septic peritonitis.

The inquest was held on March 6th, before Coroner Messemmer and the following jury: Dr. Paul F. Mundé, foreman; Dr. A. Palmer

Dudley, Dr. H. J. Boldt, Dr. Egbert H. Grandin, Dr. H. Marion Sims, Dr. A. M. Jacobus, Dr. J. E. Janvrin, Dr. R. Van Santvoord, Dr. Henry C. Coe, Dr. J. R. Goffe, Dr. E. H. Peaslee, and Dr. J. L. Morrill.

As to all the facts foregoing there was practically no dispute. Dr. W., who was present during the whole of the inquest, did not contradict any of the above-mentioned testimony relating to himself, although expressly informed that he could do so upon the stand, and that, moreover, *Dr. Reid's conduct would constitute the witnesses as he desired—a courtesy of which he did not avail himself.*

As the only essential difference developed upon the hearing resulted from Dr. W.'s explanation of the circumstances under which the certificate was made, we have reserved till this point the testimony in that regard.

Dr. W. testified that he found the patient suffering from general peritonitis, with tenderness and extreme pain in the pelvis and lower abdomen, and tympanites, with the uterus slightly enlarged, but very clean and free from pus and sepsis, and that he desired to emphasize that fact; that the condition of the uterus was "not such as would indicate criminality, but the very best treatment that such a case could have on the part of a physician"; that he scraped and curetted the womb and packed it with iodoform gauze, and gave the patient the ordinary symptomatic treatment of peritonitis; that he treated the uterus as described, though clean, "because on examination, when there is nothing found in the vagina or the cervix is closed, if there are symptoms of peritonitis, and the slightest doubt of its having come from uterine sepsis, I consider it the very best treatment to examine the contents of the uterus. I obtained practically nothing by curetting; the uterus was very clean indeed."

Upon cross-examination he testified: "I can not swear that there had been a recent pregnancy; I judged so from the os being enlarged, which it never would have been in a normal condition. Nothing came away in the curetting which induced that belief. From that condition of the uterus I judged there had been an abortion; I do not pretend to say that it was criminal; I have never made any absolute statement as to that." Q. "Have you ever given a certificate one way or the other concerning that?" A. "I gave a statement once saying that she was sick with peritonitis, and I think it said 'apparently from criminal abortion' or 'from abortion'; I don't remember which; I can't say, for it was written very hurriedly; I gave that to a detective—O'Donohue; I think it was at the same time the coroner took her statement, if I am not mistaken; I gave it at the detective's urgent request, and not of my own motion. I can not say whether I characterized it as a criminal abortion; I have no reason now to suppose there was a criminal abortion committed." [The certificate above mentioned was then produced and identified by the witness.] "When I wrote that certificate it was in accordance with my judgment; I would not permit my judgment to be overridden by the urgency of the detective. My judgment that this was a criminal abortion was formed partly from her condition, partly from the stories she told. The word 'apparently' I employed to show that I was not at all clear that it was a criminal case; I had no evidence of it. I knew my certificate was to be used in court. I don't know whether I knew on that day that Dr. Reid was to be arrested. I think I saw Dr. Reid that same day in the evening. I don't know whether I said to him on that occasion that I knew no reason why he should be arrested; I may have said it." Q. "Did you say that you had done nothing which should have caused or led to his arrest?" A. "I remember having a conversation with Dr. Reid on that subject, and I remember speaking to him of the case. I did not know any man who was concerned in the case. The woman didn't know the man to whom she had gone at first, before Dr. Reid, and inasmuch as I gave that statement concerning her condition, I did not think that it implicated Dr. Reid at all. There was no symptom which the woman herself gave from which I could say there was a criminal abortion. I took my statement as to the criminal abortion from the fact that I believed that there had been an abortion—that she was under arrest, and from her evidence that it had come on (she had taken pills, etc.)—it seemed further probable that her abortion had been presumably from some unknown cause. My judgment as to the criminality was based largely on what she said; there was no physical sign that induced me to think it was criminal; I will say frankly that it was entirely what she or somebody said to me. There was no laceration of the os or puncture of the vagina, and no sign on the woman's body



which indicated a criminal abortion. *It is my judgment today that there was no physical sign which warranted giving such a certificate.* I formed the impression that she had been pregnant from the condition of the womb, its general tenderness and the tenderness of the pelvis, and the other symptoms I have described. She did not say she had been pregnant. She made a variety of statements which were somewhat conflicting. She said at first she thought she was pregnant, and then she thought she was not; but the history of the disease led me to think she had naturally had an abortion."

The testimony of O'Donohue touching Dr. W.'s statements and certificate, in addition to that above given, was as follows: "I went to Bellevue Hospital on the night of the 16th of January to investigate a suspicious case from the sergeant that was in command of the station house. I went down there, and found that this S. J. was assigned to Ward 22 in care of Dr. W., and I asked Dr. W. what he thought it was. *He said that it was a criminal abortion.* Next day I told Dr. W. that it was necessary for me to have a certificate to take to court; so Dr. W. gave me a certificate." Q. (By Dr. Boldt.) "I should like to ask one more question with regard to this particular certificate. Dr. W. made a statement here on the stand that he had been requested to give a certificate to the effect that the operation was apparently of criminal origin. Is that so?" A. "No, sir. This S. J. was also made a prisoner on account of her performing or being supposed to have had an operation performed on her, and she was to be assigned to the prisoner ward, but the doctor said no, that he would not allow her to be moved, that she was in too dangerous a condition; and then I told him that it was necessary for me to take a certificate before the magistrate, and he sat down and wrote that certificate. I did not urge the doctor to give me that certificate; no such thing. Dr. W. and all doctors know that it is necessary to have a certificate. *He gave that entirely of his own accord, after my simple statement that I wished a certificate to explain her absence in court. The first mention of the word 'criminal' in connection with the supposed abortion I heard from Dr. W., upon the first occasion when I called to see the girl, on the evening of the 16th.* I had that certificate when I first arrested Dr. Reid, and told him so."

It was, of course, the statements, oral and written, of Dr. W. which produced the arrest and imprisonment of Dr. Reid, even after his visit and conversation with Dr. W. The tone and substance of the verdict show how the jury were impressed by his testimony.

The hearing was unusually searching for a coroner's court. Dr. William S. Stone, of the Roosevelt Hospital, and all the officers connected with the case were examined. The autopsy was described by Dr. Reid, Dr. O'Hare, and Dr. Ferguson, and Dr. Reid detailed his treatment of the deceased. Professor William H. Thomson testified to the excellent professional reputation of Dr. Reid, and Dr. Horace T. Hanks and Dr. Joseph H. Gunning to the entire correctness of his treatment.

At the conclusion of the testimony the assistant district attorney in attendance declared "that the evidence absolutely has failed to disclose any criminal conduct on the part of Dr. Reid. On the contrary, it discloses the fact that his professional conduct in this matter was entirely blameless and without reproach in this entire transaction; and the vindication that this jury can give to him is very little satisfaction for the injury and wrong that has been done to him."

The jury, after a brief charge, retired, and in a few minutes returned with the following verdict:

"The jury find unanimously that S. J., according to the evidence given, came to her death at Bellevue Hospital on January 17, 1893, and that, in accordance with the evidence likewise, the cause of death of said S. J. was general purulent peritonitis, in all probability following an abortion. We further find, also in accordance with the evidence, that there is no proof that such abortion was otherwise than natural, and we absolutely exonerate Dr. Adrian Y. Reid, the defendant, from any other than honorable professional connection with the case. In addition, we find that Dr. Reid's treatment was in accordance with that generally pursued in such cases. In conclusion, this jury desire to express their condemnation of an apparent too great readiness on the part of some persons connected with this case to incriminate, without sufficient evidence, a reputable physician, and thus subject him to the indignity of arrest and criminal prosecution."

Dr. Reid and W. were then discharged.

**The Chicago World's Fair.**—At a meeting of the joint committee of the Chicago medical profession on the world's fair entertainment, held at the Sherman House in November, 1892, the establishment of a bureau of information and service was delegated, with approval and indorsement, to Charles Truax, Greene, & Co., the committee reserving to itself the duty of such social entertainment of visiting physicians during the continuance of the exposition as might seem desirable. This action was confirmed at the final meeting of the joint committee, on February 25, 1893, and, on application of the Practitioners' Club and the South Side Medical Club, the matter of social entertainment was delegated to them, with full authority to act in the capacity of entertaining bodies, with the retention of the chairman and its American and foreign secretaries already appointed: Chairman, Dr. C. Warrington Earle; American Secretaries, Dr. Archibald Church, Dr. G. Henry Cleveland, Dr. John C. Cook, Dr. J. C. Culbertson; British, Dr. Sanger Brown; German, Dr. F. C. Hotz; French, Dr. Fernand Henrotin; Spanish, Dr. E. J. Gardiner; Italian, Dr. A. Lagario; Swedish, Dr. K. Sandberg; Canadian, Dr. R. D. McArthur.

**The Report of the Academy of Medicine's Committee on the Protection of the Water Supply of New York City.**—The committee of the Academy of Medicine appointed at the special meeting of that body on March 9th, presented an elaborate report to the academy on Thursday last, together with a large number of papers, including copies of the various bills, amendments, and statutes bearing upon the subject of water protection.

The report states that the committee were appointed at a special meeting and instructed to present the views of the academy to the Legislature. The views to be presented are said to be:

"What the city needs (in the opinion of the academy) is: First, a consistent plan, approved by sanitary experts, for the safe disposal of town and village sewage on the watershed, and legal and financial power to carry such a plan into effect. Second, such legislation as shall forbid, under compelling penalties, individual pollution of the water and honest and efficient enforcement of that legislation. Third, the city needs the power and means to acquire (under proper safeguards of individual rights) such real estate as may, in the minds of competent sanitary experts and engineers, be necessary to protect the water after the sewage problem shall have been, so far as possible, solved by the more simple and effective measures which science has made known."

The committee presented these views in the form of amendments to the "Webster bill," at that time under consideration by the Senate committee on cities. Not the least attention was given to the academy's representatives, save a formal hearing by the Senate committee, when the chairman of that committee, as appears from the stenographic report presented to the academy, seems to have acted much the same part as a lawyer engaged to oppose the academy's suggestions might have done. The Senate committee reported the original bill favorably, making no pretense of paying the least attention to the academy, and the Senate promptly passed the measure the next day. The academy committee at once telegraphed to the Governor asking to be heard by him before the bill should be enacted by receiving his signature. The Governor granted the request and, after consideration signed the bill, filing at the same time a memorandum which directed attention to the faults mentioned by the committee and urged the necessity for legislation which should be unquestionably sufficient in the premises. The committee, immediately after learning that the bill had been signed, sent it to Albany, and it was introduced upon the same day into both Senate and Assembly by Senator Saxton and Assemblyman Kempner respectively. This bill was in accord with the committee's instructions. With it were forwarded alternative amendments which, though the committee did not approve of them, might be accepted in case of emergency. At a conference with the Mayor, these amendments were accepted by the latter, and introduced at the request of the Corporation Counsel. The academy bill was not withdrawn, however.

The following is an abstract of the "Webster bill" and the changes recommended by the academy.

Section 1 makes it lawful for the Commissioner of Public Works of

the City of New York, acting for and in behalf of the city, to acquire or take, in the manner subsequently specified in the act, title to, or to acquire or extinguish any interest in, any real estate in the counties of Westchester, Putnam, or Dutchess which may be necessary for sanitary protection of the water supply.

Section 2 defines the terms "real estate" and "interest therein" as used in the act.

Section 3 directs the commissioner "from time to time, and as often as he deems necessary, and within three years after the passage of this act," to cause maps and statements to be prepared indicating the water courses, etc., and the property of which the "use or condition does or may injuriously affect the sources of water supply," and specifying what real estate or interest it is proposed to acquire, take, or extinguish. Both maps and statements may be modified when necessary. Notice must be given and hearings allowed to all persons interested before the maps and statements are finally certified and approved. The commissioner is empowered to administer oaths and issue subpoenas in any proceedings pending.

Section 4 gives authority to enter upon any land or water for the purpose of making examinations, surveys, etc.

Section 5 specifies the details to be shown on the maps. It also directs that a certain number of copies of maps and statements shall be prepared and distributed in a certain way.

Sections 6 to 25 (inclusive) prescribe the manner of acquiring and making compensation for property condemned.

Section 26 authorizes the commissioner to cause surveys and maps to be prepared without contract, and to employ such persons as may be needed to carry out the provisions of the act, to fix the compensation for their services, to make without contract any alterations required for sanitary reasons in any property acquired, and to appoint and fix compensation of any persons needed to maintain in good condition the property acquired.

Section 27. The commissioner "is hereby authorized to take such measures as may be necessary to preserve from pollution and defilement all the sources of water supply, . . . and to that end to enter in and upon, at any time within three years after the passage of this act, any or all lands near, on, adjacent to, or contiguous to any of the said sources of water supply, and to abate and remove the cause of any such pollution or defilement." The section then sets forth the manner of determining and making compensation for damages resulting.

Sections 28, 29, and 30 authorize the issue of bonds in order to obtain the necessary money, limit the amount to be expended to \$350,000 per annum for three years, direct the commissioner to make monthly reports of money spent and liabilities incurred, and direct the comptroller to pay the sums required, proper precautions being taken to avoid fraud.

Section 31 reaffirms certain limitations already existing as to the use of the waters of Lake Mahopac and Lake Gleneida.

It will be seen that this act gives enormous power to a single man—a part of which power is legislative; that it does not give power to make and enforce sanitary regulations; that it does not require the adoption of a plan for sewage disposal devised or approved by sanitary experts and engineers; and that, although it gives authority to abate nuisances, it does not forbid the creation of nuisances, except the city buys the land upon which they may be established.

The instructions which the committee had received were to present the academy's views to the Legislature. The first thing to be provided, according to the resolutions, was a consistent plan for the safe disposal of town and village sewage upon the watershed, approved by sanitary experts, and legal and financial power to carry out the plan. The second was to make possible the promulgation and enforcement of sanitary rules and regulations. The third was to permit the purchase of land if necessary.

All these requisites were covered by the amendments suggested by the committee to the Webster bill. The amendments made the following changes in the bill:

1. A commission composed of the Commissioner of Public Works, who was to be president of the commission, a member of the city health board, a member of the State health board, to be nominated by that body; a member to be nominated by the Chamber of Commerce

of this city; a sanitary engineer, approved by the American Society of Civil Engineers of New York, was substituted for the Commissioner of Public Works.

2. The commission was directed to take advice from experts and to employ them to draw a plan of action.

3. The commission was vested with so much of the powers conferred upon a town or village health board as might be necessary to make and enforce sanitary rules and regulations and to abate and prevent nuisances.

4. Sufficient power was given to do whatever might be necessary in the premises, to buy land or build and maintain any necessary safeguards, such as sewers, etc.

**The late Dr. Laurence Johnson.**—The trustees of the New York Academy of Medicine have adopted the following:

*Resolved*, That the trustees of the New York Academy of Medicine are deeply sensible of a great loss through the death of their recent associate, Laurence Johnson.

That they have long shared with his professional brethren an appreciation of his faithfulness to every trust, his versatility of accomplishments, his gentleness of spirit and charity toward others, and the many traits that contributed to his noble nature.

That although his untimely death leaves in our circle of associates a gap that no one can fill, the memory that will ever remain among the most cherished of our lives will inspire us to emulate his manly character, professional zeal, and generous nature, and so long as this memory lasts will his influence among his former associates continue.

Be it also *Resolved*, That these resolutions be entered upon the minute of this meeting and reported to the academy, and that a copy thereof, signed by the remaining members of the board of trustees, be sent to the family of our deceased member.

**A Prize Essay on Homœopathy.**—To Dr. William W. Browning, of Brooklyn, has been awarded a prize of \$100 for the best essay on the pretensions of modern homœopathy, offered by Dr. George M. Gould, the editor of the *Medical News*. There were thirteen competitors. Dr. Browning's essay is entitled *Modern Homœopathy; its Absurdities and Inconsistencies*.

**The Manhattan Clinical Association** was organized on March 17th, and the following officers were elected: President, Dr. J. P. McGowan; vice-president, Dr. Emilio Echeverria; secretary and treasurer, Dr. William Smith Roose.

**The Richmond Academy of Medicine and Surgery.**—Dr. Stuart McGuire is announced to open a discussion on drainage in abdominal surgery at the next meeting, on Tuesday evening, the 11th inst.

**Professor Hans Virchow** is to be given a reception in Newark, N. J., this (Saturday) evening by Dr. Charles J. Kipp.

**Professor Rudolf Virchow.**—The *British Medical Journal* announces that the honorary degree of D. C. L. has been conferred on Professor Virchow by the University of Oxford.

**Changes of Address.**—Dr. Charles Jewett, Brooklyn, to No. 330 Clinton Avenue; Dr. C. H. Robinson, Dublin, Ireland, to No. 1 De Vesel Place, Kingstown, County Dublin; Dr. R. W. Wilcox, to No. 706 Madison Avenue.

**The Society of Medical Jurisprudence.**—At the next meeting, on Monday evening, the 10th inst., Dr. Landon Carter Gray will read a paper entitled *A Suggestion for a New Method of taking Expert Testimony*.

**A Handsome Consultation Fee.**—The *Deutsche Medicinal-Zeitung* states, on the authority of a Russian journal, that Professor Sacharin, of Moscow, has received a consultation fee of 14,000 roubles from a well-known millionaire.

**The Association of American Medical Editors** will hold its eleventh annual meeting in Milwaukee on June 5th. Mr. Ernest Hart, the editor of the *British Medical Journal*, will deliver the annual address.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 26 to April 1, 1893:*

DE SHON, GEORGE D., First Lieutenant and Assistant Surgeon, Fort D. A. Russell, Wyoming, is granted leave of absence for sixteen days, to take effect on or about April 1, 1893.

SPENCER, WILLIAM G., Captain and Assistant Surgeon, is granted leave of absence for two months, on surgeon's certificate of disability, with permission to leave the Department of the Platte.

BYRNE, CHARLES C., Lieutenant-Colonel and Deputy Surgeon-General, Medical Director, Headquarters Department of the Columbia, is granted leave of absence for one month, with permission to apply for an extension of one month.

#### Society Meetings for the Coming Week:

**MONDAY, April 10th:** New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Society of Medical Jurisprudence, New York; Lenox Medical and Surgical Society (private); Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

**TUESDAY, April 11th:** New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), Rensselaer, and Tioga (quarterly—Owego), N. Y.; Richmond, Va., Academy of Medicine and Surgery; Bergen (annual—Hackensack) and Cumberland (annual), N. J., County Medical Societies; Fairfield County, Conn., Medical Association (annual); Newark, N. J., and Trenton (private), N. J., Medical Associations; Northwestern Medical Society of Philadelphia; Baltimore Gynecological and Obstetrical Society.

**WEDNESDAY, April 12th:** New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany; Tri States Medical Association (Port Jervis, N. Y.); Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society; Kansas City, Mo., Ophthalmological and Otolological Society.

**THURSDAY, April 13th:** New York Academy of Medicine (Section in Pediatrics); New York Laryngological Society; Brooklyn Pathological Society; Medical Societies of the Counties of Cayuga and Fulton (quarterly), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia; New London, Conn., County Medical Society (annual).

**FRIDAY, April 14th:** New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Brooklyn Dermatological and Genito-urinary Society (private); Medical Society of the Town of Saugerties, N. Y.

**SATURDAY, April 15th:** Clinical Society of the New York Post-graduate Medical School and Hospital.

### Book Notices.

*Diseases in Children.* A Manual for Students and Practitioners.

By JAMES CARMICHAEL, M. D., F. R. O. P. Ed., Physician, Royal Hospital for Sick Children, etc. Illustrated with Thirty-one Charts. New York: D. Appleton & Co., 1892. Pp. xvi-591. [The Students' Series.] [Price, \$3.]

The subject-matter of this most admirable treatise is derived largely from the author's private and hospital practice, and, although the many authorities he has had occasion to consult in his busy medical life are duly quoted, there is no evidence of an undue desire to display erudition. The author assumes that

the reader is acquainted with general medicine and the diseases afflicting adult life, and therefore believes it to be his duty to accentuate such divergence as may exist in the anatomical and physiological characteristics of those of infancy and childhood and to show in what degree they may modify the features and the clinical relations of disease. He declares the highest aim of the physician to be the prevention of disease, and therefore very properly begins his book with a dissertation on hygiene, domestic and scholastic. This is followed by a chapter on the methods of examining a child. The study of pathology is entered upon by that of the fevers, to which succeeds that of the disorders of the general nutrition. We should have preferred to find the every-day disturbances, such as disorders in the digestive or pulmonary tract, the first in order, for then the student's mind would have been impressed with the necessity of remembering the disproportion frequently existing in childhood between cause and effect, and with the fact that great disturbances do not necessarily denote the existence of severe disease. This, however, is a minor detail of a very valuable book that every physician would be the wiser for consulting.

*The Food Inspector's Handbook.* By FRANCIS VACHER. London: The Record Press, 1892. Pp. ix-140.

This little work is a collection of papers that appeared in the *Sanitary Record* during 1892, and the experience of the author as a medical officer of health and food analyst has fitted him to write authoritatively on the subject of food inspection.

He surveys the requisites that enable an individual to become an efficient food inspector, reviews the various acts that apply to the inspection and regulation of the sale of food, and divides the consideration of his subject into nine headings: *a*, Animals, carcasses, and butcher's meat; *b*, poultry and game; *c*, fish; *d*, fruit and vegetables; *e*, corn, bread, and flour; *f*, milk; *g*, arrowroot and similar preparations, butter and its substitutes, cheese, lard, and eggs; *h*, tea, coffee, cocoa, and sugar; and *i*, condiments and spices. In the chapters devoted to each of these headings the subject is presented in a manner that permits the non-professional reader to grasp the author's meaning. There are two chapters devoted to the diseases of animals that render meat unfit for food.

While the author prefers a good intelligent butcher to a veterinary surgeon for the office of food inspector, because a practical knowledge of meat is most essential, it is difficult to understand how such a man is to be fitted for discharging the duties of inspector of other classes of foodstuffs. It does not seem that the author is fully justified by known facts in making the statement that it is quite exceptional to find the *Bacillus tuberculosis* in the milk of tuberculous cows.

The author's style is attractive and the omission, as far as possible, of technical terms will make the work useful both to the professional and the lay reader.

*Traité clinique et thérapeutique de l'hystérie* d'après l'enseignement de la Salpêtrière. Par le Docteur GILLES DE LA TONNETTE, ancien chef de clinique des maladies du système nerveux à la Salpêtrière. Préface de M. le Dr. J. M. CHABROT, Professeur de clinique des maladies du système nerveux, membre de l'Institut. Hystérie normale ou interparoxystique. Avec 46 figures dans le texte. Paris: E. Plon Nourrit et cie.

PROFESSOR CHABROT, in his preface to this work, bestows the highest praise upon its author, extolling him not only as one of his own most careful and faithful students, but also as an original investigator, and particularly emphasizes the great importance of his discovery of the chemical formula of hys-



geria. A most interesting chapter on the evolution of the conception of hysteria, containing many illustrations derived chiefly from well-known paintings, is demonstrative of the unchangeable nature of this most protean disease. The author is, curiously enough, guilty of a sad oversight; nowhere in his book do we find a definition or description of hysteria, so that we are ourselves forced to construct our own image of it bit by bit out of his careful study of the elements or fragments. Even this we are not able to complete, for in the midst of an interesting disquisition on blood changes, on page 573, we read "End of Vol. I," the first intimation we have received that we have had in our hands a work of more than one volume. This failure on the part of the author to take the reader into his confidence deprives the latter of the pleasure always felt by him at the logical development of a disclosed plan or proposition, and inadequately replaces it by an aimless, rudderless condition. The satisfaction he would have normally felt in a clear exposition of known facts is thus largely destroyed. The volume treats of the history and aetiology of hysteria, of the cutaneous, mucous, and sensory anæsthesiæ and hyperæsthesia, of the hysterogenetic zones, of hysterical visual troubles, of contracture, of amyasthenia, of the trembling, of the mental condition, and of the general nutrition of the hysterical patient. The work is not indexed with sufficient care, so that it has been several times impossible, without a prolonged and repeated search of both index and text, to find paragraphs to which a second reference was desirable.

*A Treatise on Diseases of the Nose and its Accessory Cavities.* By GREVILLE MACDONALD, M. D. (Lond.), Physician to the Hospital for Diseases of the Throat. Second Edition. London and New York: Macmillan & Co., 1892. Pp. xix to 381. [Price, \$2.50.]

THE author has adopted a method of indexing his work that is sure to commend it to general favor—table of contents, chapter-indexing, and marginal notes. The busy man is always grateful when he is enabled by any such device to find at a glance the division of the subject that particularly interests him, and when, moreover, he finds, on consulting the text, that the author has written, so to speak, with the patient before him, his attention and confidence are entirely gained and he follows with the closest attention the lessons of one who has seen and understood. Macdonald's style is admirably adapted to his subject, which latter he keeps, without deviation, constantly before his eyes. We can not too highly recommend the treatise.

*A Manual of Diseases of the Nervous System.* By W. R. GOWERS, M.D., F.R.C.P., F.R.S., Consulting Physician to University College Hospital, etc. Second Edition, revised and enlarged. Volume I. Diseases of the Nerves and Spinal Cord. With One Hundred and Eighty Illustrations, including Three Hundred and Seventy Figures. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xvi to 616.

THE first volume of Gowers's most excellent and classical work has been increased, as he himself states, by additions on every page—additions rendered necessary by the advance in science and bearing on such important subjects as multiple neuritis, brachial neuritis, senile paraplegia, muscular dystrophy, etc.

The whole subject matter has been so carefully revised that in the entire volume there is but one paragraph showing traces of interpolation (on bone fracture in acute atrophic paralysis, p. 364). The illustrations, although plentiful and sufficiently exact from a scientific point of view, are wanting in artistic quality.

*Spectacles and Eyeglasses; their Forms, Mounting, and Proper Adjustment.* By R. J. PHILLIPS, M.D., Instructor in Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine, etc. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. viii-17 to 97.

THIS work, as its author informs us, is intended to supplement studies in refraction and to give the student the necessary knowledge for the correct placing of glasses before the eyes. Before proceeding to the demonstration of his subject, the author reviews the history of the development of lenses from the time of their first discovery. The necessary practical manipulations are succinctly described and illustrated in their natural order, thus enabling physicians, in the absence of an optician, to themselves furnish spectacles to their patients. We can heartily recommend this little book and believe that it could render much good service to every general practitioner.

*Lectures on Pathology* delivered at the London Hospital by the late HENRY GAWEN SUTTON, M. B., F.R.C.P., Physician and Lecturer on Pathology at the London Hospital, etc. Edited by MAURICE EDEN PAUL, M.D., and revised by SAMUEL WILKS, M.D., LL.D., F.R.S. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. xviii to 503.

THIS is a series of *causeries* on the various departures from health common to the human race, delivered by a man who has evidently outlived systems and methods so necessary for the beginner in collating his newly acquired knowledge. Our author was apparently as partial to the psychological aspect presented by every patient as interested by his somatic departure from the equilibrium or restless condition indicative of health. He is constantly full of regret that the senses, the instincts, are not more frequently consulted, and considers most medical interference as impertinent. His own sympathies have evidently been broad, embracing in their comprehensiveness the thoughts and actions of many generations. We find, curiously enough, but few citations of medical authorities, while the poets and historians are constantly being introduced as familiar friends. As we are warned in the preface by the compiler of the lecture notes, Dr. Maurice Eden Paul, the author's style is quaintly peculiar, one might almost add incomprehensibly so. On the other hand, the author's charming personality so pervades every sentence that great regret arises that his portrait, as well as his biography, has not been added to the work so that our half-formed picture of him could be completed. We can imagine that it would have been difficult to find a man with whom it would be possible to have talked over as satisfactorily as with Sutton the manifold experiences of a long and studious life. Yet, by very reason of this ripeness of knowledge, from which the angles have long since disappeared, we doubt if the work, despite its great attractiveness, will be suitable to its stated destiny—that of a clinical text-book. The subject matter is not sufficiently co-ordinated or didactic in its form to aid the student materially in passing examinations, which, judging from the text, was the immediate object of the lectures. But, be this as it may, the work may be read by the experienced practitioner with equal profit and pleasure.

## Miscellany.

**The Evolution of Pathology.**—On the 16th of March there was delivered before the Royal Society a notable Croonian lecture by Professor Rudolf Virchow, who took for the theme of his discourse *The Position of Pathology among the Biological Studies*. The lecture was

published in the *British Medical Journal* for March 18th. The following is a considerable portion of it:

"The downfall of the old medicine, the so-called humoral pathology, was brought about in the beginning of the sixteenth century. We in Germany are inclined to attribute to our nation a decisive rôle in this memorable struggle.

"It was a man of our race, Andreas Vesalius, or from Wesel, who transformed anatomy into an exact science, and who thus, at one stroke, created for medicine a solid foundation, which it has retained ever since, and, let us hope, will never again lose.

"But the principal blow to the old medicine was struck by his somewhat elder contemporary Paracelsus—that charlatan yet gifted physician who removed from among the beliefs of mankind the doctrine of the four humors which, quasi-chemical in its construction, formed the basis of the old pathology. Strangely enough, he accomplished this with weapons borrowed from the army of the Arabs, the successors of the Greeks, and the chief representatives of the mediæval humoral pathology. From them also he borrowed alchemy, and at the same time the fantastic spiritualism of the East, which found a clear expression in his doctrine of the *archæus*, as the determining force in all living beings.

"In this way the new medicine, at its very birth, absorbed the germs of that ruinous contradiction which, even up to this present century, has kept up the embittered strife of the schools.

"To Vesalius is due the exact tendency which starts from the observation of actual conditions, and which, without going further, we may call the anatomical.

"Paracelsus, who pronounced the anatomy of the dead body to be useless, and sought for the basis of life as the highest goal of knowledge, demanded 'contemplation' before all else; and, just as he himself arrived in this way at the metaphysical construction of the *archæi*, so he unchained among his followers a wild and absolutely fruitless mysticism.

"Nevertheless, there lay hidden in that 'contemplation' of his a healthy kernel, which would not allow the intellectual activity which it had stirred up to come to rest. It was the idea of *life* which formed the ultimate problem for all future research. Strangely enough, this idea, which always existed in the popular mind and which is in an unmistakable form present even among primitive nations, had been driven far into the background in scholastic medicine. Ever since the time of Hippocrates it had been the custom to use, instead of life, the obscure expression '*phôris, natura*'; but in vain does one seek for a more exact definition of the term. To Paracelsus Nature was living, and the basis of his life was that very *archæus*, a force differing from matter and separable from it, or, as he himself expressed it, in the sense of the Arabs, a spirit, *spiritus*. In the compound organism of man, the microcosmos, each part, according to him, had its own *archæus*, but the whole was ruled by the *archæus maximus*, the *spiritus rector*. From this premise has proceeded the long succession of vitalistic schools, which, in ever-changing forms and with ever-new nomenclature, introduced into the notions of physicians this idea of a fundamental principle of life.

"If the sagacious Georg Ernest Stahl, whose services to the development of chemistry are now acknowledged everywhere, substituted the soul for the *spiritus rector*, and so created a system of animism, the last vestiges of which have disappeared from the school of Montpellier within our own time only, so also in turn did the pure vitalists build upon the dogma of specific dynamic energies, maintained so stoutly by the physicists, that notion of the vital force, the half spiritualistic and half physical character of which has contributed so much, even in our day, to puzzle and mislead men's minds.

"The doctrine of the vital force found its strongest support in the *Naturphilosophie*, especially in that which, on German ground, soon obtained universal sovereignty.

"This summary exposition of mine has greatly anticipated the historical progress of the evolution of medicine. It is now time to pay proper homage to the great investigator who made the more exact method the ruling one, and at the same time to award to this country, which brought him forth, its important share in determining the new direction of our science.

"Nearly one hundred years had passed since Vesalius and Paracelsus had begun their work when William Harvey published his *Exercitatio anatomica de motu cordis et sanguinis in animalibus*. Here, for the first time, the anatomical examination of living parts was carried through in an exemplary way according to experimental methods. All the objections that anatomy concerned itself with dead parts only were thus at once set aside; living action became the object of immediate observation, and this was done on one of the most important organs, one absolutely necessary to life, the varying activity of which constantly calls for the attention of the practical physician. Not only so, however, but a new mode of observation—the experimental method—was thus brought into use for research; a method through which a new branch of medical science, physiology, has been laboriously built up.

"The influence of this one wonderful discovery of Harvey's on the ideas of men of his time and of his successors was memorable. Among the men of his time the last support of Galenism disappeared with the proof of circulation; among his successors the comprehension of the causation of local processes dawned for the first time. Very ancient and highly difficult problems, such as inflammation, could now be attacked; a goodly piece of life also became intelligible, since one of the vital organs themselves could now be subjected to experiment, and, to the astonishment of all, the action of this organ showed itself to be an absolutely mechanical one. The revulsion of thought was so complete that it has become since a difficulty hardly to be overcome to enter even in imagination into the ideas of the older physicians, to whom the circulation of the blood was unknown.

"Nevertheless, in spite of such striking results, the craving of man for more complete understanding remained unsatisfied. One saw the action of the living heart, but how did it live? What was this life, the action of which one saw before one? In the heart itself the essence of life could not be recognized.

"Harvey turned his attention to another object; he tried to observe the very beginnings of life in the incubated egg of the fowl and in the embryos of mammalian animals. He thereby soon arrived at the question of the significance of the egg in general, and enunciated the celebrated dictum, *Omne vivum ex ovo*. Owing to the more extensive researches of modern investigators, this dictum, as is well known, proved too narrow for the whole animal kingdom, and is no longer exact when applied to plant life. Its validity for the higher animals, on the other hand, can not be questioned, and it has formed one of the firm standpoints on which researches on sexuality and on the propagation of life have been based. But Harvey, on account of the deficiency of his optical instruments, was unable to see that which he was laboring to discover—namely, the process of organization as such, just as he had been unable in former times to see the continuity of the capillary flow. This imperfection lasted for a long time afterward; and thus it happened that even Albrecht von Haller and John Hunter considered the formation of the area vasculosa in the incubated egg of the fowl as the commencement of organization, and, indeed, as the type of organization itself.

"I will return to this point later on; but for the present I should like first to draw your attention to a man whose importance for the further development of the doctrine of life has always appeared to me to have been uncommonly great and highly significant, but who nevertheless has sunk into unmerited oblivion, not only among posterity in general, but also, I think I may be allowed to say, even in the memory of his countrymen. I mean Francis Glisson, who was a contemporary of Harvey, and whose works appeared almost simultaneously with those of his more celebrated colleague; but the brilliancy of Harvey's discoveries was so great that the light which shone from Glisson's work-table almost disappeared. I rejoice that on so joyful an occasion I may recall the memory of the modest investigator, and may offer him the tribute of gratitude which science has to award him.

"When, thirty-five years ago, I published my little essay on Irritability and Irritability,\* I did not know much more about Glisson than

\* *Archiv für pathologische Anatomie und Physiologie*, 1858, vol. xiv, p. 50.

what every student of medicine learns—namely, that there is in the liver a *capsula cerealis* (Glisson), and what was even less known, that this anatomist had written a small work on *Rhachitis*, which indeed was the first of its kind. In my own paper on this disease<sup>2</sup> I had tried to demonstrate the circumspection and accuracy which are noticeable in this book, and which make it a typical model for all collective investigations; but even at that time I overlooked the fact that this was only the smallest merit of this wonderful man. It was only in the further course of my studies on the history of the doctrine of irritation and irritability that I made the discovery—an astonishing one to me—that the idea of irritability did not, as is generally thought, originate with Haller, but that the father of modern physiology, and the Leyden school, in which he had been brought up, had borrowed this idea from Glisson. I then stumbled on a series of almost forgotten publications of this original scholar, especially his *Tractatus de naturâ substantiæ energeticiæ seu de vitâ naturæ ejusque tribus primis facultatibus, perceptivâ, appetitivâ, et motivâ*, which appeared in London in 1672, and in which the ideas were further worked out, the outlines of which had already been brought forward in his *Anatomia hepatis*, published in 1654. In this work (p. 400) the newly-coined word *irritabilitas* appears, so far as I can find out, for the first time in literature. It may be noticed, by the way, that the expression *irritatio* is much older. I find it already in Celsus, but with an exclusively pathological signification. It appears also occasionally in later writers, and to this day it has not, speaking accurately, lost this original signification. It is otherwise with Glisson; to him irritability is a physiological property, and irritation merely a process of life dependent on the natural faculties of living matter.

"Thus he was led, through a process of contemplation, to maintain the existence of the *biarchia*, the *principium vitæ*, or the *bîusia*, the *vita substantiâlis vel vitæ substantia*. And, in order to allow of no misunderstanding as to the source of his 'contemplation,' he adds distinctly that this is the *archæus* of Van Helmont—the *vis plastica* of plants and animals.

"In the further course of his philosophical discussions he nevertheless is led into the same bypath which has misled, even in the most recent times, so many learned men and even excellent observers. This is the bypath of unlimited generalization. The human mind is only too prone to render intelligible what is unintelligible in particular phenomena by generalizing them. Just as even in recent times an attempt has been made to render consciousness intelligible by representing it merely as a general property of matter, so Glisson thought he might attribute to the active principle (*principium energeticum*) which, according to him, is contained in all matter, the three faculties of living matter which he considered as fundamental—namely, the *facultas perceptiva, appetitiva, et motiva*. All matter was sensitive, was thus stimulated to develop impulses, and moved itself as a consequence of these impulses.

"It is not necessary for the purpose of our present inquiry to carry these quotations further, since they are quite, in the Paracelsian sense, contemplative in their nature; and especially as, in their generalization, they do not appear to be important for the history of advancing knowledge.

"That which is full of significance for us is concerned with actual life only, in the narrower sense of analytic science. It was not the *principium energeticum* set up by Glisson which stimulated his successors again to take up the thread of his observations, but rather this process of irritation described by him, and the fundamental faculties of living matter on which it depended. In this way he has really led up to a more exact study of the actions of life and the properties of living matter.

"Unfortunately, there intervened a mistaken conception, which led his followers again into a series of most serious errors. Glisson, following on this point also the example of Van Helmont, was convinced that nerves contracted when irritated. He joined to this the idea that, through the contraction of the nerves or even of the brain, the fluid contained in them was propelled toward the periphery.

"This notion, shared by Willis and many other physicians of that

time, furnishes the reason why irritability was identified with contractility. Even the great master Hermann Boerhaave, and after him his pupil Gaubius, the first special writer on general pathology, considered sensation and motion as common properties of, at all events, all the solid parts of the body. The former thought it proved that hardly a single particle of the body existed which was not sensitive and did not move; and thus it became comprehensible how Haller himself carried this idea that irritability had the same significance as contractility from his school days in Leyden to his professorship in Göttingen. It was in this sense that he understood the irritability of the muscles, and in the same sense he denied this property to the nerves.

"This dispute about the irritability of muscles has continued far into the present century; its long duration becomes intelligible only when we bear in mind that, without the most exact knowledge of its historical development, even the very statement of the question is liable to be misunderstood.

"As a matter of fact, so far as we know, the nerves are not contractile like the muscles; on the other hand, the muscles are not only contractile, but are also irritable. Irritability and contractility are not identical, even when they occur in the same part. The nerve current, on the other hand, can not be compared with the blood stream; it does not consist in the movement of a fluid, but is of electrical nature, and hence there is no need for its production of a contraction of the nerve tubes.

"It was also an erroneous conclusion that every irritated part contracted. Instead of contraction, secretion, or, under certain circumstances, a more vigorous nutrition may occur as the final result of irritation. Hence we use a more comprehensive term in order to express this final result, and call all forms of it 'actions.' While Glisson defined all *actio propria sic dicta* as *motus activus*, we distinguish different kinds according to the nature of the effects, or, expressed otherwise, according to the direction of the activity (nutrition, formation, and function); but we agree with the above thinker in the opinion that no vital energy is ever set free without stimulus; that, therefore, every action is of an irritative nature. In this irritation, according to my idea, consists the *principium dividendi*, according to which we must distinguish between active and passive processes of life, and in this way we gain also a basis for the fundamental division of pathological elementary processes. How much work has been necessary in order to render this conception possible! And how great, even now, is the number of our colleagues who have not fully accepted it! The reason for this difficulty is twofold.

"Most of the vital actions of life, whenever they manifest themselves by visible effects, are of a compound nature. As a rule, very various, at times wholly unlike, parts, each with its specific energy, combine to produce them. Not infrequently it thereby happens that in the visible sum of final effects one part behaves in an active, the other in a passive manner. It is only the most minute analysis of the phenomenon, tracing it right back to the elementary parts, which allows the total result to be resolved into its components; such an analysis can not, for the most part, be expressed in current language, except at great length. No language in the world is rich enough to possess special expressions for each such combination. Only too often we help ourselves out of the difficulty by regarding the compound phenomenon as a simple one, and by expressing its character according to some chief trait, which stands out in a commanding manner from the general picture. This is the practical difficulty.

"With it, however, a theoretical difficulty is very often combined. The human mind, owing to a natural impulse, seeks in the phenomena indications of their determining cause. The more complex the phenomenon, the more busy is the imagination, in order to convert it into a simple one, and to find a unitarian cause for it. So has it happened in respect to life, so in respect to disease. The course of thought followed by Glisson is opposed to such an explanation. He had no scruple in dividing the unit of life into a large number of individual lives. Although the knowledge we now possess of the arrangements of the body was absolutely foreign to him, yet he arrived quite logically at the *vita propria*, the proper elementary life, of the several parts. To be sure, this expression, so far as I can see, is not to be found in his works, but occurs first in those of Gaubius; but Glisson says distinct-

\* Arch. f. path. Anat. u. Physiol., 1853, vol. v, p. 410.



ly: \* 'Quod vivit per se vivit vitam a nullâ creaturâ præter se ipsum dependentem. Hoc enim verba vivere per se sonant.'

"The Unitarian efforts of the following period relentlessly passed over the tendency of which I have just spoken. Some returned to the old Mosaic dictum, 'the life of the body is in his blood'; others gave the nervous system, and the brain especially, the first place in their consideration. Thus once more was renewed the old struggle, which for thousands of years had divided the schools of medicine into humoral and solidar pathology. Even when we ourselves entered on scientific work, hæmato-pathologists stood in hostile attitude to neuro-pathologists.

"In England, humoral pathology found a strong support in the great and legitimate authority of John Hunter. Although this distinguished practitioner never shared the one-sidedness of the later pathologists, but rather attributed to the solid parts the living principle, the existence of which he assumed, nevertheless, in his investigations, the blood took precedence over all other parts as the chief vehicle of life.

"One must, however, recall to mind that Hunter laid special stress on the fact that life and organization are not bound to each other, since animal substances which are not organized can possess life. He started, as has already been noticed, from the erroneous conception that eggs are not organized, and that it was not till after incubation that the first act of organization—namely, the formation of vessels—took place. He considered his 'diffuse matter'—*materia vitæ diffusa*—as the actual carrier of life; and this was to be met with not only in the solid parts, but in the blood also. This matter, according to him, existed in the brain in a remarkable degree of concentration, but its presence was quite independent of all nervous structures, as is shown by the example of the lower animals which possess no nerves. In the posthumous writings of Hunter, which Owen has collected, the very striking expression 'simple life' is met with, a state most clearly to be recognized in plants and the lowest animals. This simple life was, in Hunter's view, the ultimate source of all living actions, pathological as well as physiological.

"Hunter was out and out a vitalist, but his materialistic vitalism, so to speak, differed *toto celo* from the dynamic vitalism of the German schools. If living matter existed independently of all organization, such living matter was beyond the scope of anatomical investigation but, on the other hand, if it were present in non-organized parts, such as an egg, it was in itself the ultimate source of the organization which subsequently makes its appearance in these parts. It must therefore, to adopt a later mode of expression, be of a plastic nature. Here Hunter's notion fell in with that of the plastic lymph, as developed by Hewson, and it was only logical that Schultzenstein applied it to the blood at last, and designated as 'plasma' the material of life present in the blood. In this way the formative and nutritive matter necessary to physiological life, as well as the plastic exudations occurring in diseased conditions, could be attributed to the same material—a highly satisfactory result in appearance, and one providing a most convenient basis for interpretations. The exponents of this notion had no scruples in going one step further, and in providing this material of life with a technical name. They called it 'fibrin.' Evidently this did not quite correspond with Hunter's ideas, for we know of no such matter either in the egg, or in the plants or the lower animals, as that to which he attributed simple life; but the necessities of pathology overcame all such scruples, and the plastic exudations were received as undoubted evidence that fibrin possessed the power of becoming organized. They formed, in the *crasis* doctrine of the Vienna school, the bright spot of this newest kind of hæmato-pathology.

"Wherever fibrin failed, blastemata were brought to the fore. Ever since Schwann had given the name of cytoblastema to the organizing material of the egg, the way had been opened for assuming in other places the existence of material with this ambiguous name.

"But, of course, through these steps the one simple matter of life predicated by Hunter was replaced by many 'matters of life,' and thus the entire advantage gained by the exposition of a unitary theory of life was at once lost.

"Even when, finally, protoplasma was recognized as cell contents, and thus the one requisite of Hunter—namely, that the material of life must also be contained in the individual parts—appeared to be fulfilled, yet no single specific material was thereby arrived at. No one dreamed of regarding protoplasm as fibrin, and least of all did any one consider it a simple chemical body.

"By the conception of the blastema, however, there had been re-awakened a thought which had occupied the minds of man from the earliest times. If a plastic matter capable of being organized really existed in the body, then the organization of the same must present the first reliable example of epigenesis. The problem of the *generatio æquivoca*, which had been fought over for so long a time, now appeared to be solved. What Harvey had taught concerning the descent from the egg was rejected concerning the descent from exudation. Several generations of young medical men have been educated in this belief. I myself remember my 'epigenetic' youth with no little regret, and I have had hard work to force my way through to the recognition of the sober truth.

"Meanwhile the attention of other bodies of inquirers had been directed to the tissues of the body. Among these, in view of their importance, the nervous tissues, and especially the mass of nervous tissues in the brain and spinal cord, rank highest.

"Hunter also had acknowledged the importance of the brain, and hence called it the *materia vitæ coærvata*. It was easily seen that it contained no fibrin, but experimental research showed also that neither the brain nor the spinal cord was of the same value throughout all its parts. The more accurate the experiments, the smaller became the region which, in the strictest sense, is the vital part, until Flourens limited it to one single spot, the knot of life (*nœud vital*). Was the unity of life found in this way? By no means. The brain is no more and no less vital than the heart; for life is present in the egg long before the brain and heart are formed, and all plants, together with an immense number of animals, possess neither the one nor the other. In the highly compound organism of man the brain and spinal cord have a certain determining action on other parts necessary to life. Their disturbance may immediately be followed by the disturbance of other vital organs, and sudden death may ensue.

"But the collective death of a compound animal no more implies the local death of all its special parts than the local death of some of the latter is incompatible with the collective life of the animal. As has been well said, at the death of a compound organism there is a *primum moriens*, one part which first ceases to live; then follow, at long intervals sometimes, the other organs, one after the other, up to the *ultimum moriens*. Hours and days may pass between the total death and the local death of the parts. The fewer nerves a part contains, the more slowly usually does it die; I therefore consider the process of dying in the compound organism as the best illustration of the individual life of the several constituent parts, which is in its turn the first axiom necessary for the study and for the understanding of life.

"A long time, however, elapsed before it was possible to return to this starting point and to obtain a considerable number of supporters for the doctrine of the *vita propria*. The attention of many observers was drawn to a totally different side of the question. In the last decade of the past century, about the same time that John Hunter, starting from careful anatomical investigations and exact observations of surgical practice, worked out his idea of the material of life, a new system of medicine was founded in Scotland—the so-called Brownian system—which was based on quite different premises. Brown also was a vitalist; he too constructed, not merely a pathological and therapeutic system of vitalism, but a physiological one, though this doctrine was dynamic in its character.

"There is but little to be noticed therein of the material anatomical foundation of exact medicine. It is concerned principally with contemplations of the forces of the living organism. One can understand to some extent how this happened if one keeps in view the history of the development of this extraordinary personality. I can not go into this here, but anyhow the remarkable fact remains that the two contemporaries—Brown and Hunter—worked near each other without it appearing from their writings that they were acquainted with

\* Glisson. *Anatomia hepatis*, Ad lectorem, N. 17.

one another. Brown struck out his own line and stuck to it without troubling himself about the rest of the medical world. And yet even his first work, *Elementa medicince*, had the effect of an earthquake; the whole European continent was shaken by it, and even the physicians of the recently opened New World bent under the yoke of revolutionary ideas; and in a few years the aspect of the whole field of medicine was entirely changed. True, the triumph was but short; the Brownian system disappeared as it had come—a meteor in the starry heaven of science. There would be no reason to go into it more fully had not the impulse which he had given instigated other men, and been permanently applied by them to the true service of science. This impulse was founded on the fact that irritability, or, as Brown called it, 'incitability,' was thus reinstated as the starting point of the theory; but along with this the stimuli, which set living substances in action, the *potestates incitantes*, were brought to the fore. In so far that stimuli produced a state of irritation (*incitatio*), or, as Brown called it later, excitement, they came to be viewed, not only as the cause of health and disease, but even of life itself; for excitement, so he said, is the true cause of life; but as excitement stands in a certain relation to the strength of the stimulus, a state of good health was only possible with a normal degree of stimulus, while an excess or a lack of stimulus brought diseased conditions in its wake. Of course, excitement is dependent also on irritability, with a certain quantity of which, in the form of energy, every living being is endowed at the beginning of its life.

"The division of diseases, according to the amount of vital force visible in them, into sthenic and asthenic, has never been abandoned since, though acknowledged, perhaps, in a less precise manner; it has sometimes been brought more prominently forward, and sometimes thrown into the background. In Germany, Schönlein was the one of all others who took this doctrine as the foundation of his opinion on special cases of disease and for his choice of treatment.

"But the application of the Brownian principles to physiology has been of far greater importance. If life itself were dependent on external stimuli, the notion of the spontaneity of vital actions, a notion still in force, must lose all significance. Certain stimuli would in that case prove to be necessary conditions of vital activity, without which life could at best be carried on in a latent form only. Certainly even for this latent life the question remained open, How does it come to pass, and in what does it practically consist? Brown avoided this ticklish question, not without great skill, by drawing the whole attention to active life and to the stimuli which call forth action. To speak openly, science has since then deflected little, or not at all, from this guiding notion. Even now we can not say what latent life is. We simply know that through external stimuli it may be converted into active life, and hence irritability is considered by us as the surest sign of life—not, of course, of the general life of all matter in the sense of Glisson, but of the real and individual life of special living organisms. Brown remarked, with reason, that through irritability the living substance is differentiated from the same substance in its dead condition, or from any other lifeless matter. Nevertheless, neither irritability nor incitability, neither irritation nor incitation, explains the essence of the living substance, and therefore neither explains the essence of life.

"In Germany the physiologists especially took up this question. Among the first was Alexander von Humboldt, who in his various writings, especially in his celebrated treatise on the irritated muscle and nerve fiber, entered into the question. In the end he held fast to the assumption of a vital force. The majority of pathologists and physicians followed in his footsteps, and long and fierce controversies were necessary before, nearly half a century later, the belief in a vital force was destroyed. When Du Bois-Reymond had demonstrated the electrical current in muscle and nerve in all its characters, and, at the end of his work, had also disclosed the inadmissibility of vital force, then the venerable Humboldt formally and expressly renounced the dream of his youth, with the masterly submission of the true naturalist to the recognized natural law.

"The hypothesis of a vital force of life had, however, in regard to Brown's theory, neither a positive nor a negative value. Johannes Müller rescued for general physiology, in which it has ever since kept its place, that which was valuable in Brown's system—the doctrine of the integrating life stimuli."

**The Physiology of the Embryonic Heart.**—At a meeting of the Royal Society held on January 26th a preliminary communication by Mr. J. W. Pickering, assistant demonstrator in biology at St. Bartholomew's Medical School, was presented by Professor Halliburton. The communication is published in the *Proceedings of the Royal Society*, No. 319, as follows:

"The object of the following experiments has been to study the effect of varying conditions on the heart previous to the development of a nervous mechanism, and thus to throw some light on the discussion as to the relative importance of the two factors in the heart's action—viz., the contractile tissue and the nervous elements. The heart I have used is that of the chick\* at a period of incubation of seventy-two hours at a temperature of 38° C. In some cases the embryos have been a few hours older or younger. The embryo is not removed from the egg, but a window is cut 3 cm. square through the shell and shell membrane, exposing the albumen and blastoderm, which remain undisturbed; the egg and embryo is fixed in a small chamber surrounded on five sides by a water-jacket. The uppermost side is covered with glass, while the air of the chamber is kept moist by the evaporation of water from a small bowl placed inside it. The temperature of this chamber can be kept constant or varied at pleasure. My experiments have fallen under three main heads: 1. The results of varying the temperature. 2. The introduction of drugs. 3. Electrical stimulation. In my full paper the results will be shown in tables giving the number of heart beats per minute, the peculiarities in the beat, when such exist, being duly noted. At present, however, I am only prepared to give an abstract of the results obtained, in so far as temperature and drugs are concerned. The electrical experiments are not yet completed.

"1. *Temperature.*—Each embryo has an individual rhythm of its own, which, if the conditions are constant, remains unaltered, but different embryos, even of the same age, may have different rhythms, so that it is necessary to determine for each embryo its normal rhythm before variations can be studied. An embryo's heart, aged seventy-two hours, at a temperature of 31° C., was beating with a regular rhythm of 84 per minute. The temperature of the air of the chamber was rapidly raised to 42° C., when the rhythm rose to 91 per minute. A further rise to 50° C. increased the rhythm to 128, it still remaining regular. The temperature was then rapidly lowered to 26° C., when the rhythm fell to 114 per minute. A further fall to 16° C. reduced the rhythm to 34 per minute. The temperature was then raised to 46° C., when the rhythm rose to 117 per minute. On again letting the temperature fall to 26° C., the rhythm fell to 36 per minute.

"The above experiment, taken as an instance from several, shows that, other factors being constant, the rhythm of the embryonic heart varies directly with the temperature of the surrounding medium.

"Extremes of temperature stop the heart; thus exposure to a temperature of 10° C. causes the beats to become weaker and slower, and finally to stop in diastole. If the air of the incubator be raised above 50° C., the beats become so rapid as to be uncountable. They are feeble, and the heart is pale, due to the passage of less blood through it than in the normal state. Violent systolic spasms alternate with periods of quiescence. It stops in an expanded condition when the surrounding temperature is about 55° C. Lowering the temperature restores the beating, but the heart is enfeebled. If the temperature is raised much above this limit the heart is killed. Mechanical stimulation of the heart in standstill, due to either extreme of temperature, if applied at the ventricular end, gives rise to one or more waves of contraction, commencing from the auricular end, and showing the direct conduction through the fibers of the heart. The heart will respond to auricular stimulation when irrespective to ventricular stimulation. Small variations of temperature, such as one or two degrees, occurring over a long period of time, as in an hour, do not affect the rhythm.

"2. *The Introduction of Drugs.*—The drugs employed were applied directly to the heart substance at the temperature of the embryo, and dissolved in normal saline (0.65 per cent. sodium chloride) solution.

"a. *Caffeine.*—An embryo, aged sixty-eight hours, at 33° C. had a

\* Observations are being carried on upon the mammalian embryo *in situ*.

rhythm of 88 per minute. To its heart 0.00015 gramme\* of caffeine was administered, and in two minutes the rhythm rose to 100 per minute, and remained constant for two minutes and a half, when it fell to 96 per minute. A second dose of 0.00015 gramme raised the rate to 102 per minute. The beats were also of greater force, since more blood was seen passing through the heart. A dose of 0.0025 gramme was fatal. When given to an embryo, aged seventy-five hours, at 37° C., beating with a rhythm of 116 per minute, it reduced the rhythm, after one minute's action, to 100 per minute. The beats, however, remained very strong. After one minute forty-five seconds' action the heart stopped in strong systole, but started again and gave a few powerful beats. After the drug had acted nine minutes thirty seconds the heart stopped permanently in powerful contraction. Caffeine, therefore, acts directly on the cells of the embryonic heart.

"b. *Strychnine* was given to a seventy-hours' embryo in a dose of 0.000017 gramme, and depressed the rhythm of the heart from 112 per minute to 62 per minute. There was no spasm. In an eighty-hours' embryo, at 39° C., a dose of 0.00002 gramme temporarily increased the rhythm, both in force and number of beats; then the systole rapidly became weakened and the rhythm irregular. A further dose of 0.00002 gramme still more rapidly reduced both force and frequency of beating, till death in diastole occurred.

"c. *Morphine acetate*, if given in doses of 0.0001 gramme, is a powerful depressant. With a dose of 0.0002 gramme, after one minute's action on an eighty-five hours' embryo at 40° C., irregularities and slowing were obtained; after two minutes' action the beating stopped, but went on again, the waves of contraction sometimes passing from ventricle to auricle, and at others in the normal direction. Periods of rest alternated with violent bouts of rapid beating.

"d. *Veratrine*.—Doses of 0.0001 gramme increase the number of beats per minute. Larger doses may cause, temporarily, an increase of rhythm, but soon depress the heart by greatly lengthening the systole, which becomes very weak while the diastole is complete. The heart stops in an expanded condition. The heart of a seventy-two hours' embryo that had stopped in diastole, after a dose of 0.0005 gramme, was restored by the application of 0.01 gramme of potassium chloride almost to its normal rhythm. This agrees with Ringer's observation on the frog's heart.

"e. *Potassium chloride*, when applied in a dose of 0.005 gramme to an embryo aged seventy-two hours, reduced the normal rhythm of 76 per minute to 60 per minute. A further dose of 0.01 gramme reduced the rhythm to 64 per minute. After the administration of a total amount of 0.07 gramme of the substance, the heart stopped in diastole.

"f. *Nicotine*, in very minute doses, stimulated the embryonic heart;  $\frac{1}{4}$  c. c. of a solution containing  $\frac{1}{4}$  c. c. of nicotine to 100 c. c. of normal saline was a stimulant; with  $\frac{1}{2}$  c. c. the frequency and force of the heart diminished, systole becoming almost absent, while the heart was finally paralyzed in diastole. The addition of 0.03 gramme of potassium chloride restored the heart to almost its normal rhythm, the beats at the same time becoming strong, both as regards systole and diastole. A further dose of nicotine depressed the heart, and again brought it into diastolic stoppage, the systoles having become weaker and weaker. There was no spasm.

"g. *Atropine*.—Doses of 0.001 gramme had, in a sixty-hours' embryo, a slightly depressant effect, and even after 0.006 gramme had been administered, the rhythm of the heart had only fallen from 96 to 72 per minute. In a seventy-two hours' embryo, with a heart beating at 116 per minute, 0.012 gramme, after three minutes' action, had depressed the rhythm to 80 per minute, while even after the administration of 0.275 gramme the rhythm was strongly maintained at 64 per minute.

"h. *Muscarnine Nitrate*.—To the heart of a seventy-two hours' embryo at 35° C., which was beating with a rhythm of 90 per minute, three drops of half-saturated solution of muscarnine nitrate were applied; the rhythm remained constant for two minutes, after which period two more drops were added, and the rhythm kept constant at 94 per minute during the next three minutes, after which period four more drops were added, and the ensuing rhythm was 93 per minute; two drops of satu-

rated solution were then added, which was so concentrated as to stain the embryo brown. During the following five minutes the rhythm was constant at 84 per minute, each beat remaining normal in direction and force. Two more drops of saturated solution caused slight irregularities, but the rhythm during the next seven minutes averaged 72 beats per minute. Finally two more drops of saturated solution were added, and during the following seven minutes the heart's rhythm was 75 per minute. The whole experiment lasted thirty minutes, and ten drops of half-saturated plus nine drops of saturated solution of muscarnine nitrate were administered. A control experiment with the hearts of two frogs showed that the muscarnine used stopped their beats, which were typically restored by atropine. In a similar experiment, witnessed by Professor Halliburton, with both embryonic and frogs' hearts, the rhythm of the former was maintained at 136 per minute, while the latter was stopped and subsequently restored by atropine. Identical results were obtained with a ninety-six hours' embryo. In an embryo aged seventy hours at a temperature of 30° C., which is subnormal in the chick, a rhythm of 92 beats was obtained after the application of 1 c. c. of half-saturated solution for the following nine minutes, after which 1 c. c. of saturated solution was applied. This was fatal to the heart, almost instantly coagulating the tissues. There were no typical phenomena of muscarnine poisoning, and the application of atropine failed to restore the rhythm. Probably any strongly alkaloidal body in such a concentrated solution would produce a similar effect.

"i. *Schmiedberg's Digitalin*.—An embryo aged seventy-two hours at 30° C. had a heart rhythm of 132 per minute. To it 1 c. c. of normal saline containing 0.000022 gramme of digitalin was applied. During the next eleven minutes the rhythm remained constant, after which time 1 c. c. containing 0.00005 gramme was added, which produced no change in the rhythm; then 0.0001 gramme was put in, and after one minute's action the frequency of the rhythm had fallen to 92 per minute, but both the systole and diastole were strong. The rhythm after six minutes' action rose to 104 per minute. After this another 0.0001 gramme was added, and the rhythm fell after two minutes' action to 60 per minute. The systole was typically perfect, but the diastole was incomplete. The whole heart, after two minutes' more action of the drug, became very pale and in a state of tonic contraction with very feeble fluttering diastoles, which faded away, leaving the heart stopped in a contracted condition.

"j. *Strophanthin* (of Merck's manufacture).—A seventy-two hours' embryo at a temperature of 32° C. had a heart rhythm of 132 per minute. A dose of 0.00005 gramme did not alter the rhythm. A second dose of the same amount, after twenty minutes' action, reduced the rhythm to 54 per minute; both systole and diastole were regular and complete. Five minutes after this the diastole became irregular, and the systole was more marked than in the normal condition. After another minute had elapsed the ventricle passed into a state of tonic contraction with a few feeble beats, in which the diastole was very weak. The auricles had a marked diastole and a weak systole, and were engorged with blood. During the next five minutes the auricle had a rhythm averaging 24 beats per minute, while the ventricle remained in tonic contraction. Finally, forty-one minutes after the administration of the dose, the auricle stopped in diastole, the ventricle remaining in tonic contraction. The auricles responded by 10 beats to a mechanical stimulus; the beats did not extend to the ventricle. Six minutes after this the auricle responded to mechanical stimuli, the wave of contraction passing either from the ventricular end to the auricle or *vice versa*, according to which end of the auricle the stimulus was applied.

"In larger doses of 0.0002 gramme the rhythm in a seventy-hour embryo at 33° C. was depressed from 120 to 102 per minute, the systole becoming very strong and the diastole imperfect. After four minutes' action the rhythm returned to the normal both in frequency and force. To the same embryo 0.00025 gramme was then added, when, after one minute's action, the auricle dilated, giving small twitch-like contractions, while the ventricle passed into tonic contraction. The auricle remained for six minutes feebly responsive to mechanical stimuli.

"k. *Nitrite of Amyl*.—A ninety-six hours' embryo kept at 35° C. was subjected to the influence of the vapor of 5 minims of nitrite of amyl. After one minute's action the rhythm rose from 96 to 124, and after another minute fell to 112. After another minute it had fallen

\* All weights of drugs used are expressed in grammes.



to 104, and six minutes afterward was at the normal. In a seventy-two-hour embryo at a temperature of 47° the rhythm was 124 per minute. A dose of 1 c. c. of solution of amyl nitrite dissolved in olive oil (strength being 1.5 c. c. of the drug to 10 c. c. of olive oil) was given, and the frequency of the rhythm fell in one minute to 112, but the beats were strong. Six minutes afterward another c. c. of the solution was introduced, and the rhythm fell to 104, but was strong. Three minutes later another c. c. was put in, and the rhythm rose to 112, but was very weak and irregular, and finally before death the rhythm was reversed.

*Concluding Remarks.*—The observations here recorded show that the embryonic heart when kept under favorable conditions reacts in a very delicate manner to all those classes of stimuli which influence the adult heart. The experiments on temperature show that its variations act directly on the cardiac muscle, and thus confirm the opinion of Newell Martin\* and others who have arrived at the same conclusion from experiments on the adult heart.

"The action of caffeine, morphine acetate, potassium chloride, veratrine, nicotine, digitalin, strophanthin, and amyl nitrite is direct on the contractile tissue of the embryonic heart. This greatly favors the view that they act direct on the adult cardiac muscle. It will be noted that many of the actions here described on the embryonic heart are almost identical to those observed by others on the adult heart. Notoriously so is the antagonism between veratrine and potassium chloride, where my observations are identical with those of Ringer† on the frog's heart. A similar antagonism exists between nicotine and potassium chloride. The remarkable correspondence of my results with strophanthin on the embryonic heart with those of Professor Fraser‡ on the frog's heart greatly supports the view of that observer as to the direct action of strophanthin on cardiac muscle without the intervention of any nervous mechanism, and, further, the absence of diastolic stoppages in my experiments also supports Fraser's view that that condition in the frog's heart is due to the action of small doses of strophanthin on the cardiac nervous mechanism of that animal.

"The lengthening out of the systole in veratrine poisoning corresponds to the same well-known lengthening of the systole in the frog's heart under veratrine. The reversing of rhythm observed in morphine poisoning is similar to that mentioned by Ludwig\* as occurring in the mammalian ventricle when under the influence of opium, for then the auricular beats follow instead of precede the ventricular beats, the rhythm being reversed. The same occurs in amyl nitrite poisoning.

"Krukenberg‡ has stated that neither atropine nor muscarine affects the heart of Ascidians.

"My observations on the action of atropine and muscarine, which have been made on a large number of embryos, show that in the absence of a nervous mechanism they do not influence the heart. This will probably modify the current views on the action of these drugs, and my results show that the method I have adopted is a valuable one for differentiating the functions of cardiac muscle from those of the nerves which supply it."

"**Aminol.**"—A liquid under this name has been brought out as a disinfectant, an antiseptic, and also for internal use. With regard to the possible therapeutic value of "aminol" we pass no opinion; such an opinion can only be given after repeated and prolonged and comparative trials made with scientific exactness in hospital wards. But some idea of its value, or the reverse, as a disinfectant may be obtained by a few simple experiments. Solution D "aminol" is a clear fluid with a strong fishy smell. It is alkaline, the alkalinity in one hundred cubic centimetres being equal to 0.12 gramme of ammonia; it is indeed a solution of ammonia and amines. Pfuhl has shown that if any liquid is sufficiently alkaline, it matters not whether the alkalinity is due to

potash, soda, ammonia, lime, or magnesia; all these have disinfectant actions if a sufficient and equal degree of alkalinity is attained. In this case the alkalinity *per se* is insufficient to act as a disinfectant, therefore any properties which it possesses must be ascribed to its chemical composition.

The writer finds that if a paste is made with "aminol" and flour, and the paste infected with stale urine, the paste in a few days smells most offensively and abounds with organisms. A paste made with "aminol," diluted with four or five times its volume of water similarly infected, was still more offensive than the paste made with pure "aminol," showing that when used undiluted better effects were obtained than when diluted. "Aminol" added in small quantities to urine did not prevent mold and growth of ferments, but, added in large quantities, samples of urine did not decompose so much as control samples.

It is therefore the writer's opinion that "aminol" possesses feeble antiseptic powers, but that in no true sense is it disinfectant.—*Brit. Med. Jour.*

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\* Newell Martin. *Phil. Trans.*, 1883, p. 663.

† Ringer. *Practitioner*, vol. xxx, 1888, p. 17.

‡ Fraser. *Edinburgh Roy. Soc. Trans.*, vol. xxxvi, 1890-'91, Part ii, p. 388 et seq.

\* Ludwig. *Lehrbuch der Physiol. des Menschen*, Bd. ii, 1861, p. 38.

‡ Krukenberg, quoted in Brunton's *Text-book of Pharmacology*, etc., third ed., p. 114.

## Original Communications.

A PLEA FOR

### METHODICAL EXAMINATION OF PREGNANT WOMEN IN PRIVATE PRACTICE,

AND INCIDENTALLY FOR

THE RELEGATION OF MIDWIVES TO THE FIELD OF NURSING.\*

By J. MILTON MABBOTT, M.D.

THE latter part of the title of my paper may mislead some to suppose that its chief purpose is the promotion of improvement in obstetrical practice among the poor. Permit me at the beginning to correct such an impression by saying that the first part of my subject is as important as the latter, and it would be difficult to decide which class of the community is most in need of improvement in regard to the matter to which I first invite your attention.

Some of the members of our society who are interested in other specialties, and who, in private practice at least, have done little or no obstetrical work, have perhaps, and probably, never paused to consider whether or not the same careful and thorough examinations are regularly made in private practice which they know to form part of the routine in the modern clinic and hospital. If such considerations have presented themselves to mind at all, it has probably been assumed that private patients are treated at least as well as patients in the hospital, and it may have been further assumed that the so-called "better class" of private patients, who can afford to pay well for attendance, would, if there were any difference or distinction between classes, be likely to receive the most attention. You are disposed to assume that among this class of patients, where misfortune to the mother connected with the birth of her child means so much to the community and so much, let me add, to the *accoucheur*, that the latter, from mere policy if not from conscience and a sense of duty, will certainly do all in his power to assure the advantage and safety of his patients. But the facts in the case do not support such inferences, and those of you who are familiar with private obstetrical work will support me in the statement that many reputable physicians make no pretense of examining their patients under ordinary circumstances prior to receiving the call to attend them at the onset of labor. The individual cases in which the examination for which I plead in this paper would be the means of leading to the adoption of measures which are capable of simplifying labor, saving a child's life, or averting calamity to the mother, form so small a part of the grand total that practitioners have remained indifferent and "taken chances" on the result.

At the present day I trust there is no necessity of extending my plea to include institutions for lying-in women. But, strange as it may seem, as recently as some five years ago, when I became house physician of the Nursery and Child's Hospital, where some of the women are admitted as early as the sixth or seventh month of pregnancy, no examination was regularly made previous to labor, except

in cases in which the staff had reason to suspect unnatural conditions as indicated by the history or appearance of the patient. I took the liberty to introduce the practice of examining every patient shortly after admission, and my action received the approval of the attending staff. But I was informed that such practice had been previously instituted in the hospital and had been discontinued in deference to the wishes of some of the managers, who had raised the objection that the ordeal was too trying to the modesty and sensitiveness of the women, and opposed to the promotion of the aims of the institution, which was endeavoring to secure to those whom it sheltered all the comforts and consideration with which they would be treated in their homes. "And surely," some lady is reported to have said, "you doctors can not claim that such examinations in all cases are necessary for the welfare of the women or babies; otherwise why do not our family physicians insist upon them in private practice?" The attending physician who furnished part of the foregoing history thought it would not be at all surprising if the managers should again request the discontinuance of the practice. Be it said to their credit that this time they interposed no obstruction, and the further experience of the hospital with breech labors, for example, became materially diminished.

It seems to me a false modesty and supersensitiveness on the part of the patient, and an unpardonable amount of indifference on the part of the doctor, which permits the willing neglect, in any case, of means which *some time* may save a life. We may save but one life in five hundred cases; it may never fall to our individual lot to save a life. But if we meet with a single case in which we might have saved a life and did not, can we hold ourselves blameless? The medical profession, I fear, has sometimes attached too little importance to the life of the child. May we assume that the recent renewed interest in Cesarean and allied operations is the sign of a better conscience? Such operations are sometimes undertaken with a view to saving the child even at the expense of great risk to the life of the mother. Some of us are not fully persuaded that subjection of the mother to *additional* risk is ever justifiable, and would select a Cesarean operation only when it offered the mother at *least as good* hope of recovery as any other feasible procedure. But methodical examinations during pregnancy may be urged in the interests of mother and child alike. There is no conflict between the two. Such examinations should become as much a part of routine practice as analysis of the urine. And who in these days will neglect urinary analysis in any instance of pregnancy, though happily negative in an overwhelming majority of cases?

The practice under consideration comprises abdominal palpation and auscultation, digital exploration *per vaginam* (and rarely *per rectum*), and external and conjoined manipulation by one or more persons. Methods need not be here described; some of the text-books contain excellent dissertations upon this subject. My purpose is simply to urge the adoption of the practice in all possible cases—*primigravida* and *multigravida* alike—soon after they come under professional care, and certainly without unnecessary delay

\* Read before the Hospital Graduates' Club, February 23, 1893.

if the woman has passed the eighth month of pregnancy. If the first examination has been made much earlier than the period indicated, I should consider it advisable to repeat it at some time during the last month of gestation, since it is not rare for fetal positions to change during the earlier part of pregnancy. And in cases in which an unfavorable presentation is met with and rectified, a subsequent examination near the time of expected delivery will appeal to all as rational practice. The desired correction may even be left until some time near the full period of gestation in the hope that it may occur spontaneously in the mean time. I have notes of a case of spontaneous substitution of the head for the breech occurring between the thirty-fourth and thirty-sixth weeks. But it should not be forgotten that external version is sometimes more difficult later in pregnancy, and labor may supervene earlier than you expect.

Unless the conditions are especially favorable to examination, some experience is necessary before an observer acquires the requisite skill for diagnosis of fetal positions *in utero* with much confidence. The practical observer will occasionally fail. Pronounced obesity, muscular tension of the uterine or abdominal walls, marked hydramnion, small proportions of the fetus, multiple pregnancy, and other rarer conditions may interfere with recognition of such positions or nullify our capacity to improve them.

(The writer may hope to be pardoned for reminding you parenthetically of his so-called "trousers case," in which the woman gave birth to "a pair of breeches." For the benefit of one of our members, whose special interest in obstetrical matters is well known, I would further state that the "breeches" had become soiled in some way and had to be washed. The "way" in which the soiling had occurred was the *via naturalis*, so it was unavoidable. But it was none the less a pity, for they were very nicely "creased." They had just been "pressed" by the mother with a good deal of "labor"; in fact, she had taken considerable "pains" with them.

It is not always especially difficult to diagnosticate the presence and positions of twins. To modify the latter is quite another matter, and I offer no apology except for the pleasantery.)

The most common utility of the practice recommended consists in the conversion of podalic or pelvic into cephalic presentations in single pregnancies. The time of election is prior to labor, preferably toward the end of the eighth month, to secure the advantage of the presence of abundant amniotic fluid with unruptured membranes, and the absence of the contractions of parturition. Under these conditions it is not usually difficult to push up the breech and bring down the head by a procedure requiring no anesthetic and involving but slight discomfort to the mother, while it improves the prognosis of labor both for herself and for the child. And while infant mortality in breech labors is conceded, *ceteris paribus*, to be much higher than in vertex cases, additional danger to the cervix and perineum being also involved on account of the necessity for rapid delivery of the after-coming head, what right have obstetricians to neglect a means so simple and devoid of danger? Some one

may raise the hypothetical objection that the practice recommended might occasionally result in a face or brow presentation, which would be more unfavorable than a breech. So far as I know, no one has yet raised such an objection or met with such a case. Attitudes resulting in face and brow presentations are not generally assumed by the fetus until shortly before or during the first stage of labor. Such an unfavorable occurrence in breech cases subjected to version should certainly be no more common than among head presentations in general. In the rare cases in which it might be directly produced by version it would probably be recognizable and remediable; and, furthermore, it is offset by the possibility of recognizing and counteracting conditions favoring spontaneous face and brow presentations which, without the examination, would have gone undiscovered and unremedied.

The recognition and correction of breech cases are not the only field of utility of examinations during pregnancy. The discovery of an anteverted or retroverted uterus susceptible of replacement, a uterine fibroma or carcinoma, an ovarian cystoma, or an ectopic gestation may reward early investigation.

Face and brow cases (as just indicated), occipito-posterior positions of the head, oblique positions and unusual size of the fetus, deformities of the pelvis, tumors, and other causes of dystocia or of danger, may be *unexpectedly* encountered. Some of the latter are as remediable, perhaps, at the commencement of labor as earlier. Even in such cases may not a previous examination make us better prepared to render the required assistance? In other cases when we are called after the advent of labor it is too late, and we can only contemplate *what might have been*.

I have regretfully in mind a case that occurred in my practice last summer in which no examination was made, and in regard to which I can not refrain from raising the question, "Might not such an examination have averted a calamity?" The case has been published in part by Dr. Dawbarn in his article on Arterial Saline Infusion in the *Medical Record*, November 12, 1892. It may not be deemed improper for me to acknowledge in this place my sense of obligation to Dr. Dawbarn and to Dr. Burkelman and Dr. L. F. Bishop, who also rendered much appreciated assistance in the case.

The woman was an out patient of the New York Lying-in Asylum. My impression is that she first applied to me out of office hours and when I was otherwise engaged, so that it was not convenient for me to examine her then, and, after taking her history in brief, I directed her to return in a day or two for examination, and to bring a specimen of urine. She was thirty-five years old and had already borne eight children and had two miscarriages in the ten years of her married life. She was within about three weeks of the expected date of confinement. She gave no history of hæmorrhage, though I afterward elicited a doubtful acknowledgment that there had been a slight show of blood once or twice in the course of her pregnancy, which had made very little impression on her memory, and to which she had attached no importance. She did not return for examination. Twelve days after application her husband came for me, informing me that she had been losing blood in large amount for the last two days and was beginning to have pains.



I responded immediately and found upon examination a central placenta prævia. Active labor pains were present, but the os uteri was dilated only sufficiently to admit two fingers. Barnes's dilators controlled hæmorrhage and assisted dilatation, and as soon as the latter was sufficient I delivered a living child by podalic version. I have since learned that the child survived only a few days. It was doubtless much weakened by the hæmorrhage. There was very little loss of blood after my arrival until about three quarters of an hour after the delivery of the placenta, which, it need hardly be said, had immediately followed the child. Then there supervened a sudden hæmorrhage of considerable amount, and by the time it had been controlled the woman was so exsanguinated that I sought the assistance of Dr. Dawbarn (who had previously proffered such assistance in case I should ever require it), and we resorted to arterial and subcutaneous saline infusion.

Our patient remained alive for six days. Had I been permitted to examine her during the latter part of pregnancy, might I not have discovered or suspected *placenta prævia*, warned her in regard to hæmorrhage, watched her more closely, and then, being permitted to treat her before the exhausting drain of two days' hæmorrhage before delivery, might we not have averted the *post-partum* hæmorrhage, which was probably largely due to exhausted uterine tone? Or, if the same amount of *post-partum* hæmorrhage had occurred unprecedented by the two days' hæmorrhage which had so greatly diminished the hæmatopoietic powers of the system and her capacity for convalescence, might she not have made a good recovery? It seemed as if she only just fell short as it was.

During our first interview every pregnant woman should be warned to notify the physician immediately in the advent of hæmorrhage whether an examination has been made or not. But ordinarily we prefer to pass lightly over such a subject, unwilling to add to the already too great anxiety associated with child-bearing. An examination in every case will give us greater confidence to assure our patients that the warning is only a matter of routine when we find apparently normal conditions. And the assurance that "everything is as it should be" alone repays most women for the annoyance of submitting to the examination, whereas, if we find suspicious conditions, we shall feel justified in adopting treatment, summoning consultation, or at least giving greater weight to our warning (to the husband or some responsible attendant, if not to the patient directly), and our management of the case will certainly be more intelligent. Such a case as the one related, therefore, impresses upon my mind another reason for the invariable practice recommended.

And I am not forgetting the views of those gentlemen who feel disposed to decry vaginal examination on account of the danger of sepsis. Let us practice aseptic and antiseptic midwifery.

And now, for a twofold reason, I come to the second part of my subject. I am becoming more and more persuaded that midwives should not be permitted to assume the entire charge and responsibility of cases of childbirth. The midwife most assuredly can not be expected to make intelligent examinations during pregnancy. And, secondly, the average midwife seems to possess so little re-

gard for ordinary *cleanliness*, not to mention *asepsis* and *antiseptics*, that she ought certainly not to be permitted to introduce her fingers into the vagina during labor on her own responsibility. In my hospital experience I admitted to the institution far too many infants whose mothers had been attended in confinement by midwives and had died of septicæmia and from other preventable causes.

The midwife, however, not only works for small compensation, but offers her services in the general capacity of *accoucheuse*, nurse, housekeeper, cook, and domestic; and it is largely on this account, as well as from national and hereditary prejudices, that she retains her hold on certain classes of the community. Let these people still employ the midwife, if sufficiently competent, to act in the capacity of nurse and as many of the other capacities as desired, with the exception of the first-mentioned. And let every midwife so employed be required to insist upon having her patient engage professional attendance as well. If the family is very poor and can not afford to pay regular fees for such additional attendance, there are enough young doctors nearly everywhere competent and willing to attend poor women in their homes for the sake of charity and the experience which increases their own efficiency and reputation, content with whatever fees they can afford to pay, or no fee if they really can afford none. If the people or the midwife do not know of such doctors in private practice, they should be informed that there are institutions—notably the New York Lying-in Asylum\* and the Midwifery Dispensary (Society of the New York Lying-in Hospital)†—which supply, upon application, the services of physicians and advanced students under competent and responsible supervision, expecting the recipients of their services to pay for them if they can afford to do so, but furnishing them gratuitously to the poor. Care should be thus exercised not to make this a further abuse of medical charity, or a means of further pauperizing the poor, but a means of improving their condition and affording needed relief.

The better midwives may be able to secure a regular medical education and diploma; but if not, let them, for the sake of humanity, be content to be good nurses, and there are few more worthy vocations. Let them continue to receive the same compensation as now, and let them continue laboring among the same classes of the community, for it is there that they are most needed. But, as with other nurses, let their work be under the direction and supervision of the medical profession. Reproduction may be looked upon by the optimist as a natural function which may be left to Nature. Fortunately, this is very frequently the case, but difficult and unnatural labors are sufficiently numerous, and maternal and infantile deaths resulting therefrom are sufficiently common (to say nothing of preventable suffering and invalidism), to warrant the profession and the people in demanding that the practice of midwifery should not be left in incompetent hands. It is as important as the practice of medicine, and if our legislators were child-bearing members of the community, would it not be similarly regulated by law? The milder measures recently advocated before the

\* 139 Second Avenue.

† 314 Broome Street.

State society are to my mind sadly inadequate, though a step in the right direction.

I trust that I have not overdrawn the importance of either portion of my theme. May we soon see the day when every pregnant woman, rich and poor, will be under the care of a qualified physician and when methodical examination of pregnant women will become as general in private as in institution practice; as general as the inspection of a sore throat before treatment. By modern obstetrical practice the suffering and mortality incident to childbirth have been greatly reduced. That they are capable of still further reduction along the lines traversed in this paper is to my mind a statement not open to question. I understand that statistics are in course of preparation designed to compare the results of the practice of midwives with those of physicians in private practice and maternity hospitals in New York city. Such statistics when published will doubtless be of great interest. Let us hope they will exert a large influence upon the medical, legal, and popular mind to the end that the midwife may be speedily relegated to her legitimate field of nursing. Let the medical profession rise to the full sense of its own responsibility and insist upon the right to extend to private practice among all classes all the possible benefits of modern advancement in the science and art of midwifery.

19 FIFTH AVENUE

## SOME REMARKS ON HETEROPHORIA AND ITS TREATMENT.

By F. W. MARLOW, M. D., M. R. C. S. E.,

PROFESSOR OF OPHTHALMOLOGY  
IN THE MEDICAL DEPARTMENT OF SYRACUSE UNIVERSITY;  
MEMBER OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM;  
FORMERLY CLINICAL ASSISTANT  
AT THE ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS),  
AND OPHTHALMIC ASSISTANT AT ST. THOMAS'S HOSPITAL, LONDON, ETC.

Two papers recently published have presented the extremes of current opinion relating to the effect of faulty ocular equilibrium and its correction, chiefly by tenotomy, on asthenopia, and various functional neuroses.

That of Dr. A. L. Ranney (*N. Y. Med. Journal*, June, 1892) presents the optimistic view and criticises the work and ideas of those who differ with him as being behind the times, and refers to their "manifest ignorance of the later methods of examination," their prejudice, and bigotry.

It is to be regretted that Dr. Ranney's paper does not contain details of the actual changes in equilibrium brought about by tenotomy, that he quotes so freely from the extravagant statements of patients instead of giving the sober estimate of a well-balanced scientific mind, such as is essential to the proper appreciation of these cases.

It is also to be regretted that reprints of papers by Dr. Ranney should find their way into the hands of Dr. Ranney's patients. With minds well prepared for miracles, it is not remarkable that testimony should later be forthcoming of their performance.

So far my criticism is in line with that of the author of the second paper, Dr. A. E. Davis (*N. Y. Med. Journal*, October 8, 1892), who takes an extremely pessimistic view of the treatment of heterophoria, especially by partial te-

notomy, apparently thinking that no change in the position of rest can be brought about by partial tenotomy, and that the benefit admitted by patients is derived from the correction of refractive error, which commonly accompanies muscular treatment, or is due to suggestion, or to anything rather than partial tenotomy or prisms. In other words, Dr. Davis is a disciple of Dr. Roosa in this matter.

If Dr. Ranney's paper does not go far to place the correction of heterophoria on a scientific basis and to rate the practice of graduated tenotomy at its true value, Dr. Davis's can not be said to greatly advance or strengthen his side of the question. It is extravagant in language and contains evidence of careless thinking. If forcible in statement it is weak in argument, where the latter can be detected. Dr. Davis brings forward absolutely no facts of his own; he has apparently had no experience in the correction of heterophoria by prisms, much less by tenotomy, graduated or otherwise, or, if he has had any experience in the latter method, he has had one hundred per cent. of failures—he gives us his own word for it.\*

Much as this is to be regretted from the standpoint of the doctor and his patients, it is insufficient to prove the inefficacy of incomplete tenotomies for changing the position of rest, and the non-dependence of asthenopia, headaches, and other functional nervous disturbances on latent deviations of the visual axes.

Dr. Ranney has stated the condition of equilibrium after operation in one case only, and it happens to have been precisely the same as before. Dr. Davis seizes upon this solitary case as evidence that graduated tenotomy has no effect whatever in any case. It does not seem to occur to him that although the manifest error was the same before and after operation, the latent error may have been much diminished.

"I am of opinion," he writes, "that the same nil effect of graduated tenotomies would have been shown in the other cases had the final condition of the muscles been reported."

Evidently, however, his argumentative method does not leave his conscience quite easy, for he adds:

"To judge all the cases by one seems unjust, but we do this from necessity, as in only one case did he give a full report, and we measure the others by that."

The generalization would be unjust even if the explanation of the facts assumed by the writer were the only one possible, but it appears still more so when we consider that there is at least one other admissible—that of Dr. G. T. Stevens. As in hypermetropia, when the manifest error is corrected, the latent gradually becomes manifest, so in heterophoria, part only of which is usually manifest at first, the correction of a portion or the whole of the manifest part by prisms or tenotomy is followed by the manifestation of a further part of the latent error. I have several times seen a tenotomy which fully or slightly overcorrected a deviation at the time of operation, followed within a few days

\* "When a method has been tried, as has been the case with graduated tenotomies, and found wanting nine hundred and ninety-nine times in a thousand, or rather a thousand times in a thousand cases, then it is time to give it up" (*loc. cit.*). Dr. Davis brings forward no evidence to support this sweeping statement.

(and before contraction of the cicatrix could have taken place) by a manifest error equal, or nearly equal, to the original error. I find it hard to escape the conclusion that Dr. Stevens's explanation is the correct one.

It is on this case and on his own inferred explanation of its facts that Dr. Davis's argument to prove the "absurdity of such a procedure as partial tenotomy" largely depends. If Dr. Davis had had any personal experience with these operations, he would not have been inclined to build so large a superstructure on such small premises. And I may add that I doubt if Dr. Davis would have written this paper at all, so far as it refers to graduated tenotomies.

Because Dr. Davis, in common with many others, can not accept the wonders worked by Dr. Ranney by means of tenotomy and prisms, have these agents therefore no place in ocular therapeutics?

One of the most remarkable statements in the paper is the following: "That heterophoria is of little importance is evidenced from the fact that it so often occurs." Frequency of occurrence, then, Dr. Davis considers, is evidence of unimportance. The importance of an abnormal condition, in other words, is in inverse ratio to frequency. Without consuming space to show where this most extraordinary law would lead us, let us see the absurdity into which it conducts its propounder. Ametropia is decidedly of more frequent occurrence than heterophoria, and therefore (according to Davis's law) of decidedly less importance. But the whole burden of Dr. Davis's paper is that ametropia is altogether responsible for asthenopia, etc., and that heterophoria has little if anything to do with it; so that we find in the paper conclusive evidence that Dr. Davis considers ametropia both of greater importance, and yet, if possible, of less importance, than heterophoria, which he considers to be of no importance at all!

The theory of the disbelievers in muscular asthenopia as enunciated by Roosa is that in cases of asthenopia—using the term in its widest sense—the refractive error is the all-in-all.\* Correct that and the muscular system will right itself. Thus, in a case of hypermetropia with esophoria, the latter will disappear after the correction of the former; and in the almost equally common cases of hypermetropia with exophoria the deviation will cease after the correction of the refraction. Similarly with hyperphoria; that is to say, relaxation of the accommodation may be followed by either increase or diminution of convergence or by change in the relative tension of the vertical muscles in either direction as a direct consequence of such relaxation, and this claim is made as that of a disciple of Donders!

I happen to have seen this day three cases illustrative of the relation of hypermetropic astigmatism with various forms of heterophoria. All are the subjects of asthenopia and headaches. I report very briefly the degrees of ame-

tropia and heterophoria after complete abolition of accommodation by homatropine.

CASE I.—Refractive error corrected by +0.25 D. cyl. 180° in each; esophoria = pr. 8°; externi = 4°.\*

CASE II.—R. accepts +0.5 D. cyl.; L. accepts +0.75 D. cyl.; exophoria = pr. 24°.

CASE III.—R. +1.25 S.  $\square$  +0.5 c.; L. +1.5 S.  $\square$  +0.25 c.; hyperphoria = pr. 7°.

(In Cases II and III there is occasional, but only occasional, diplopia.) Though not devoid of faith and hope, I neither believe nor expect that the correction of the ametropia will remove the heterophoria in *all* these cases. Moreover, it has not been my good fortune to become acquainted, through personal experience or the literature of the subject, with any facts which would make this result appear probable. Dr. Roosa and Dr. Davis will hardly deny that the existence of such errors is an effective bar to the easy performance of the visual function.

As one of the "exceptional few" (?) who have for some years past corrected, in selected cases, heterophoria by prisms or tenotomy, I feel somewhat bound to give the results of my experience so far as it relates to the questions brought up in this controversy.

These questions are:

1. Can an incomplete tenotomy change the position of rest?

2. Is heterophoria simply a consequence of ametropia and does it disappear on the correction of the latter?

3. Are the asthenopic symptoms removed by the refractive correction, or is relief due to treatment directed toward the muscular errors?

As a working theory I assume—in common, doubtless, with many others—that the refraction and accommodation and muscular equilibrium are of normal (or of most desirable) type when images of an observed distant object are clearly and simultaneously focused on each yellow spot, the ciliary and external muscles being completely at rest. I am well aware that this assumption is not universally accepted, but I have found it to accord better with the facts observed in my own experience than any other. Therefore at present I act in accordance with it. These, however, are the conditions which permit of minimum innervation for distant vision, and this I presume is the state in which most ophthalmologists attempt to place their patients' ciliary muscles in cases of asthenopia. Why should the attempt be limited to the ciliary muscles?

There is reason to think that latent convergence or esophoria is sometimes due to hypermetropia (accommodative esophoria), but I believe esophoria of this type to be the exception rather than the rule. Usually paralysis of accommodation and the correction of the refractive error have no influence in diminishing the degree of esophoria, and many times I have seen it increase under these condi-

\* "Insufficiency of the ocular muscles is usually if not always a consequence of organic conditions in the eyeball—that is to say, of myopia, hypermetropia, and astigmatism. Working exactly on the lines of Donders's discoveries, muscular asthenopia should be expurgated from ophthalmic nomenclature." (Roosa, *Ophthalmic Review*, vol. ix, p. 252.)

\* Throughout this paper the amount of deviation is expressed in terms of prisms designated by their refracting angles. Thus, esophoria = 8° means that the latent convergence is corrected by a prism with a refracting angle of 8°, representing an actual deviating tendency of about 4°. The power of abduction, etc., are expressed in the same manner.



tions, and in at least one case a transient manifest squint has developed.

In myopia, exophoria may possibly occur as a result of the altered relations between accommodation and convergence (accommodative exophoria), but I do not recall any case in which it has disappeared on the correction of the myopia with glasses. After all, a convergent position of rest is at least as common, if not more common, than divergence in myopia.

If we disregard these exceptional cases (accommodative esophoria and exophoria), I believe it to be true that the form of heterophoria is in no way dependent on the kind of refraction in the vast majority of cases, that the two conditions are separate, and that a separate factor in the treatment is necessary for each of them.

I have two or three times observed the refraction pass from hypermetropia to myopia while the heterophoria has remained the same, which would scarcely be the case if the heterophoria were caused by the refractive condition. So far from this being so, I think it highly probable that the onset of myopia was due to tension of the external muscles caused by heterophoria.

The following cases are related to show—

1. That incomplete tenotomy can alter the position of rest.

2. That correction of refractive error fails to remove heterophoria in many cases, and that in others the glasses can not be worn until after the heterophoria is corrected by prisms or tenotomy.

3. That symptoms unrelieved or aggravated by refractive correction are relieved by muscular treatment, and that cases in which no refractive error is present are relieved by correction of heterophoria.

Cases I, II, III, IV, V, VI, VIII, IX, and X illustrate the effect of partial tenotomies in changing the position of rest.

Cases II, III, VIII, IX, X, and XI show that at any rate in some cases correction of refractive error fails to remove heterophoria.

In Cases II, VI, VII, and VIII correction only of the refractive error greatly aggravated the symptoms, which were later greatly relieved by prisms or tenotomies.

I, IV, and V are cases of emmetropia with heterophoria—great, in two cases complete, relief being afforded by graduated tenotomies.

CASE I.—January, 1889. Ch. A. B., aged thirty-eight; great sufferer from sick headache; occasional double vision. Examination of eyes showed right hyperphoria  $2^{\circ}$ ; externi =  $15^{\circ}$ ; exophoria  $12^{\circ}$  to  $15^{\circ}$ ; interni =  $12^{\circ}$ ; R. V.  $\frac{2}{3}$ , hypermetropia 0.25 D. barely; L. V.  $\frac{1}{2}$ —, with +0.15 c.  $90^{\circ}$  =  $\frac{2}{3}$ .

Partial tenotomy was done on the right superior rectus, leaving right hyperphoria =  $1^{\circ}$  (according to the patient, three quarters of the defect being removed), and on the left externus, leaving exophoria =  $1^{\circ}$ , and afterward on the left inferior rectus, leaving a low degree of left hyperphoria.

Three years and a half later condition of muscles is: Left hyperphoria = pr.  $\frac{2}{3}$  about; exophoria =  $5^{\circ}$  to  $6^{\circ}$ . Patient reports no attacks of diplopia; headache greatly diminished in intensity and frequency.

Case reported to show effect of partial tenotomy. No one

who has ever, intentionally or otherwise, divided a whole superior or inferior rectus muscle will suspect its having been done in this case. The effect of dividing the whole tendon is at least pr.  $12^{\circ}$ .

CASE II.—Miss M. M. W., aged seventeen years. Symptoms: Aching and itching of eyelids after reading; can only read a few minutes with comfort; frontal headache.

January, 1892.—Refraction after homatropine. R. +0.25 c.  $5^{\circ}$ . V. =  $\frac{2}{3}$ —; L. +0.25 c.  $175^{\circ}$ . V. =  $\frac{2}{3}$ —; low degree of esophoria. Ordered +0.25 c. each; constant wear.

Six weeks' faithful trial showed that she could not get accustomed to glasses. She was more uncomfortable with than without them.

February 29th.—Refraction precisely as above; esophoria = pr.  $4^{\circ}$ ; ordered pr.  $1^{\circ}$  each, bases out.

March 11th.—Two degrees, bases out.

19th.—Esophoria =  $10^{\circ}$  to  $11^{\circ}$ , but the prisms, although more comfortable than the cylinders, gave her little relief.

25th.—Partial tenotomy of right internus, leaving esophoria  $2^{\circ}$  to  $3^{\circ}$ .

27th.—Esophoria =  $6^{\circ}$ .

April 1st.—Esophoria  $8^{\circ}$ ; partial tenotomy of left internus, leaving esophoria less than  $1^{\circ}$ .

2d.—Esophoria =  $4^{\circ}$ .

From this time she was able to wear her cylindrical glasses with benefit, although her eyes still tired more easily than they should have done. After being fairly comfortable during the summer, she came back on September 15th with some return of symptoms.

Examination showed esophoria =  $3^{\circ}$ .

CASE III.—Mrs. M., aged about fifty-six, a myope, was prescribed for about 1880 by Dr. Thomson, of Philadelphia, who ordered —14 D. for right eye, —11 D. for left for distance, and weaker glasses for reading, and expressed the opinion that the muscular trouble which he detected would disappear with the use of the glasses. (Patient's statement.)

In March, 1890, I found  $4^{\circ}$  to  $5^{\circ}$  of left hyperphoria, and  $12^{\circ}$  to  $15^{\circ}$  of exophoria. There was also some uncorrected astigmatism in the right eye.

Her most marked symptoms were headache and blurring, and reading required too much effort.

The astigmatism was corrected, but in January, 1892, the heterophoria remained the same, and was then corrected by partial tenotomies of right inferior and both external recti muscles, with considerable relief to symptoms.

Case reported to show (1) the failure of refractive correction to remove heterophoria (even in twelve years); (2) the ability of partial tenotomy to alter position of rest; and (3) the improvement in symptoms afforded by correction of heterophoria.

CASE IV.—I. H. B., aged twenty-three, student of divinity. January 20, 1892. Since influenza, two years ago, has been subject to very severe headaches, occurring once in two or three months. Blurring for reading and distance. Can only read twenty minutes, sometimes not at all, without aching of eyes. Omitting preliminary examination, refraction after complete paralysis of accommodation by homatropine was R. V.,  $\frac{2}{3}$ , slightly improved with —0.25 c.  $90^{\circ}$ ; L. V.,  $\frac{2}{3}$ , slightly improved with +0.25 c.  $120^{\circ}$ . Exophoria =  $7^{\circ}$ . R. hyperphoria  $\frac{1}{2}$  barely. Ordered 1° prism each, bases in.

February 1st.—Prisms have given great relief; can read for some hours.

2d.—Partial tenotomy of right externus, leaving orthophoria or low esophoria.

4th.—Very low esophoria.

6th.—Exophoria = 1°. Can read as long as he wants to without discomfort.

April 28th.—Perfectly comfortable until now. No headaches or asthenopia. Exophoria = 3° barely.

October 11th.—Some return of asthenopia since returning to studies after summer vacation.

Phorometer shows no deviation, but divergence can be seen on covering and uncovering each eye alternately; = 4° by paralax test.

15th.—Prisms, 1° each, have given him complete relief.

CASE V.—November 9, 1891. Mr. B. E., aged twenty-one, had to stop study a year ago on account of weak eyes; can not sit in a room with bright light; eyes smart, burn, and water; bright sunlight annoys; can not read more than ten or fifteen minutes in daylight.

Condition of eyes: R. V.,  $\frac{5}{8}$  +, +0.25 c. 150°, slight improvement. L. V.,  $\frac{5}{8}$  em. After paralyzing accommodation with homatropine, refraction remained the same. Right hyperphoria, 1°. No lateral deviation. 1° prism, base down, before right eye was prescribed for constant use.

December 11th.—Reports that he has read three hours and a half without tiring; has at no time tired his eyes by reading; is quite comfortable with glasses. Right hyperphoria =  $1\frac{1}{2}$ °. Prism 2°, base up, before right, produces diplopia; down, permits single vision.

March 11, 1892.—Eyes have begun to trouble again; can only read a short time. Right hyperphoria = 2°+. Ordered 1°, base up, before left.

April 5th.—As the additional glass has given only partial relief, and as there is no refractive error necessitating the use of glasses, tenotomy was advised. On same day right superior rectus partially divided, leaving right hyperphoria <1°.

23d.—Much more comfortable since operation, but right hyperphoria = 1°+. Tenotomy (partial) of left inferior rectus, leaving right hyperphoria very low degree, about  $\frac{1}{16}$ °.

May 5th.—Eyes perfectly comfortable so far; has read three hours continuously. Right hyperphoria, about  $\frac{1}{16}$ °.

The patient has remained comfortable up to date of writing. This case illustrates the effect of partial tenotomy on the position of rest and upon symptoms. The normal equilibrium has been restored about as completely as possible, and the symptoms simultaneously disappeared.

CASE VI.—Miss M. V. O., aged nineteen. For two months eyes painful on use; blurring; supra-orbital pain almost daily; sometimes has to give up work and go to bed; eyes ache on waking.

May 15, 1891.—R., +0.5 sph., +0.5 c. 20° =  $\frac{5}{8}$ ; L., +0.5 s., +0.25 c. 180° =  $\frac{5}{8}$ . Esophoria, 6°.

After homatropine, R. chose +1 sph., +0.25 c. 20°. Esophoria, 12° or more. L. chose +1.25 s., +0.25 c. 180°. Convergence easily seen by covering one eye. Was ordered, R. +0.75 sph., +0.25 c.; L. +1 s., +0.25 c. 180°.

June 15th.—Glasses make eyes and head ache; seems to get worse from day to day; comes with smoked glasses on account of photophobia; can not read at all. Esophoria = 21°. Ordered prisms 3°, bases out.

July 9th.—Much more comfortable until last three days. Esophoria = 20°. Ordered 5° each.

16th.—No headache, and eyes perfectly comfortable since wearing 5° prisms.

She was, however, unable to wear the 5° prisms for long, and partial tenotomies of both interni were done, giving relief to symptoms, but leaving a low degree of esophoria.

January 23, 1893.—Complaints of some blurring recently, but has been free from headache except when reading without glasses. Esophoria = pr. 2°.

Reported to show failure of refractive correction to relieve symptoms, or rather aggravation of symptoms, by attempt to correct refraction in presence of heterophoria, and the relief afforded by prisms and later by tenotomy.

CASE VII.—Miss M., aged nineteen, university student, for past three years has suffered from frontal and temporal headache, and for one year from occipital headache also, neuralgic in character and occasionally accompanied by vomiting. Headache specially apt to be brought on by reading. Suffers also from vertigo.

November 2, 1889.—First examination showed low myopic astigmatism. After use of atropine for two days, examination showed H. = 2.25 sph., 0.25 cyl. in each, and esophoria = prism of 8°; +1.25 sph., +0.25 c., ordered for each eye.

These glasses could not be worn, although given a prolonged and faithful trial. They increased her headache and made her very dizzy. She consulted me again on February 1st, when I found esophoria = pr. 7° to 8°, and prescribed for temporary use a prism of 2°, base out, before each eye.

On February 5th she reports that she has been much freer from headache, and shows esophoria = 10°.

February 8th.—Esophoria = 12° pr. Ordered R. 3°, bases out; L. 4°, bases out.

11th.—Esophoria = 12° pr. Sees double without glasses.

22d.—Head much freer from pain; only one headache during week. Right accepts +0.25 or 5 c. 70°; left, +0.25 or 5 c. 110°.

With these glasses she has esophoria, 15°. Ordered +0.5 s., +0.25 c., 4° prism, bases out, for each.

October 17, 1891.—Has worn glasses last prescribed until present time with comfort. Since returning to studies has a return of headaches.

Homatropine used to full effect.

R. +1.5 s., +0.5 cyl.; left, ditto. With full correction, esophoria = pr. 12°, images being separated two to three feet at twenty feet. Tenotomy advised.

This case is reported to illustrate (1) the aggravation of symptoms produced by the partial correction of hypermetropic astigmatism in the presence of heterophoria; (2) the relief to symptoms afforded by the correction of heterophoria in the presence of a marked degree of ametropia. It is also worthy of note that the constant use of prisms correcting a large part of the manifest esophoria for two years has not resulted in any increase in the amount of esophoria.

I am not familiar with any evidence tending to prove the truth of Dr. Davis's assertion that heterophoria can be produced in any case by the use of prisms. A transient spasm of certain muscles may be brought about, but not true heterophoria.

CASE VIII.—March 28, 1890, Miss M. E. H., aged twenty-five. One year ago the eyes "gave out"; failure attributed to exposure to bright light and heat in Kansas; now unable to use eyes; pain in eyes and brows on looking steadily at anything, etc.; seems to have been subject to headache and pain in the eyes on waking in the morning for some time previous. Dr. Fryer, in Kansas City, six months ago prescribed R. +0.25 cyl. 60°; L. +0.25 c. 130° and a year's rest, but eyes

have not been better; and, although glasses make things very clear, they intensify the discomfort and make her nervous.

Examination showed the refractive error to be exactly corrected by Dr. Fryer's glasses: Exophoria = 6° prism; externi = 12° prism at least; interni = < 20° prism. Ordered for temporary use R. prism 1°, L. prism 2°.

*April 3d.*—Exophoria = 8° to 9° prism; R. glass changed to prism 3°.

*8th.*—Exophoria = 8° to 9° prism.

*12th.*—Exophoria = 9°, but not 10°.

*May 24th.*—Has worn glasses (prism = 5°) constantly. Has had no headaches, and on her best days has been able to read continuously for an hour. Exophoria = 10° prism, externi = 15° or 16° prism. Ordered + 0.25 c. 3° prism, base in, for each eye.

*July 18th.*—She returns, having been comfortable until within a few days, complaining of aching and pressure in eyes. Exophoria = 8° or 9° prism; externi > 15°; interni < 15°.

*21st.*—Partial tenotomy of right externus, leaving no lateral deviation.

*29th.*—Orthophoria or low esophoria. Externi = 7° prism, interni = 29°.

*30th.*—Interni = 34°. No pain in eyes on waking (says it is the first time in three years that this has happened).

*August 1st.*—Externi = 9°. Now wears Dr. Fryer's glasses with comfort.

CASE IX.—Mrs. K. H., aged thirty-five, consulted me in May, 1889, for chronic middle-ear disease, and her eyes were incidentally examined on account of a complaint of severe headache; repeated examination showed hypermetropic astigmatism in each = 0.5 D; axis at 90°. R. hyperphoria varying on different days from 3° to 5°, and esophoria 3°.

She was ordered + 0.5 c. 90° each for constant wear, with which she could use her eyes more, but did not have less headache. In June, 1891, she returned on account of increasing difficulty in using her eyes and very severe headaches, intolerance of light, etc., and showing R. hyperphoria = 4° or 5° prism; esophoria = 4° or 5°. Prisms = 3°, divided equally between the two eyes, were added to the cylinders, the axes of which were slightly changed in direction. These glasses gave her considerably more relief than the former, still she returned in July, 1892, with increasing headache and difficulty in using the eyes; on removing her glasses she can not keep her eyes open; the palpebral fissure narrows to a slit-like opening. Says the distress caused by opening the eyes without glasses is inexpressible; never opens eyes in the morning until she has glasses on. Hyperphoria still = 4° to 5°.

*July 19th.*—Tenotomy of right superior rectus, leaving marginal fibers uncut. R. hyperphoria 1° to 2° left.

*20th.*—No hyperphoria; can open eyes without glasses with complete comfort.

*September 15th.*—R. hyperphoria 2° to 3°; partial tenotomy of left inferior rectus, leaving images level.

*16th.*—R. hyperphoria low degree.

*November 1st.*—Has used her eyes a good deal more, and had only one severe headache since last operation. R. hyperphoria = 1½° prisms (phorometer); partial tenotomy of left inferior rectus.

*2d.*—L. hyperphoria = 1°.

*3d.*—No hyperphoria; read four columns of magazine last night without discomfort or headache.

This case (IX) is incomplete, but is quoted to show (1) the failure of refractive correction to effect any change in the heterophoria; (2) the immediate relief to symptoms

afforded by prisms and tenotomies; (3) the effect of partial tenotomy in changing the position of rest; (4) the failure of the prolonged use of prisms to increase the heterophoria.

CASE X.—January, 1892, Miss K. C. R., aged thirty-five. Vision defective until prescribed glasses in 1887, which seem to be a very accurate correction of refractive error. R. + 1 s. 0.38°; L. + 1 s. — 60 c. 115°. Symptoms complained of now are headache, asthenopia, and a great facility in seeing double.

Examination showed exophoria = prisms 6°. After tenotomizing with prisms, etc., partial tenotomies of both externi were done, giving almost complete relief to symptoms, and making it impossible for her to see double in distance at will, as was previously the case.

*January 14, 1893.*—Examination shows esophoria = < 1° prism. Has been comfortable up to the present time.

CASE XI.—May, 1888. P. B., boy, aged eleven. Refraction after atropine: R. + 0.5 s., + 0.5 c. 120°; L. + 0.25 s., + 0.5 c. 75°. Equilibrium not noted.

*May, 1891.*—Complains of not seeing clearly in distance. Homatropine. R. — 0.5 c. 30°, L. — 0.5 c. 165°; R. hyperphoria 4°, exophoria 5°. Ordered R. — 0.5 c. 1° prism, base down; L. — 0.5 c. 1° prism, base up.

*May, 1892.*—Got on well until Christmas, when he broke his glasses; after repair they were uncomfortable for a time, but finally settled down. Now for a few days headache and eyeache have returned. Examination of glasses shows prisms to have been reversed. Refraction as above. R. hyperphoria ½° only! Prismatic effect of glasses removed by placing both with bases in same direction.

Four days later he returned, stating that at first he was comfortable, but headache and eyeache have now come back. Examination shows R. hyperphoria 4½°!

To illustrate: 1. Persistence of heterophoria in spite of refractive correction.

2. Temporary change of equilibrium due to prolonged exercise with prisms.

3. Incidentally, onset of myopia in heterophoria.

These cases and many similar ones have set at rest forever, for me, the doubts which I entertained some years ago as to the effect of incomplete tenotomies upon the position of rest.

When I began to perform these tenotomies I followed closely the method of Stevens, making a minute opening in the conjunctiva, dilating it with forceps and picking up and cutting through the middle fibers of tendon with scissors, enlarging the incision in tendon by hook and scissors.

I found two disadvantages attending this method: In the first place, the tendon was not seen; one could not see how much was divided and how much undivided. In the second place, if hæmorrhage occurred, the clot formed a subconjunctival swelling immediately over the portion of the tendon to be operated upon, thus further interfering with the performance of the operation, and also extending so as to cover the whole eyeball in some cases.

To avoid these disadvantages, I make an incision over the insertion of the tendon, in the direction of the muscle, long enough to enable the tendon to be seen, and the size of the incision allows the blood to escape externally instead of subconjunctivally. The operation is essentially that de-



scribed by Landolt, done with the delicate instruments of Stevens. If the conjunctival wound gapes, I use a suture. The effect is tested after each portion of the tendon is divided.\*

If, in order not to expose "our ignorance and stupidity" (Davis), we eschew prisms and partial tenotomy, upon what therapeutic measures can we fall back?

"The correction of the refractive errors," say Dr. Roosa and Dr. Davis.

But in many cases there is no refractive error; in others such error is an infinitesimal quantity compared with the degree of heterophoria present; in others, again, the refractive correction can not be worn while the heterophoria remains uncorrected; and finally, in cases in which the refractive correction can be and is worn, the heterophoria persists and gives rise to symptoms.

To these large classes of cases neither Dr. Roosa nor Dr. Davis makes any reference, and consequently no suggestion as to treatment.

To conclude, the experience I have had in the treatment of latent deviations of the visual axes up to the present time seems to point to the following generalizations:

1. That the kind of deviation has very rarely any relation to the kind of refractive error.
2. That heterophoria is only exceptionally influenced by the correction of the refractive error.
3. That in many cases the symptoms can be relieved by prisms alone, or in combination with the refractive correction.
4. That in some cases of undoubted heterophoria prisms are rejected altogether, and that in some of these cases correction by tenotomy or tenotomies gives the desired relief.
5. That the position of rest can be changed by a strictly partial tenotomy.
6. That the ophthalmologist who ignores the condition of muscular equilibrium in a case of asthenopia (in the widest sense of the term) does not do his whole duty to his patient.

401 MONTGOMERY STREET, SYRACUSE, N. Y.

**German Jubilees.**—We learn from the *Wiener Klinische Wochenschrift* that Professor Karl Schweigger, of Berlin, recently celebrated the twenty-fifth anniversary of his accession to a professorship; Professor Oskar Liebreich, of Berlin, the completion of twenty-five years since he became a Docent; and Professor Karl Ewald Haase, of Hannover, the sixtieth year of his doctorate.

\* There are a number of cases in which division of the middle portion of the tendon does not produce a sufficient effect, and a complete tenotomy would almost surely cause a considerable over-correction. In such cases a partial tenotomy may be done in the usual manner, leaving only the marginal fibers attached to the sclera, and after sufficient time for the middle portion of the tendon to become adherent in its new position has elapsed, the marginal fibers can also be completely divided, leaving now the middle fibers only attached. In this way the whole insertion of the tendon can be set back, with but little danger of over-correction, or of altering the relation of the muscle to the eyeball. If the effect is still insufficient, the whole proceeding, or as much of it as is necessary, may be repeated.

## CLINICAL OBSERVATIONS ON APPENDICITIS, WITH REPORT OF CASES ILLUSTRATING DIFFERENT FORMS OF THE DISEASE.\*

By J. D. SULLIVAN, M. D.,

BROOKLYN.

EMULATING the example of my distinguished predecessors, I will make a free interpretation of the provision in the by-laws of this association which states that "at the February meeting each year the nine-o'clock hour shall be devoted to an address by the president of the preceding year upon the progress made during the year in that branch of medical art or science in which he may have been specially interested," and trust that I shall comply with the spirit of that by-law by presenting a paper which will embrace some of my individual observations on appendicitis during the year.

It is now quite universally admitted that we are indebted to the achievements of modern surgery for our present knowledge of the pathology and the treatment of diseases originating in the vermiform appendix, and that the progress made in that special branch of medical science within the last six years has been the means of saving hundreds of our fellow-creatures from an untimely death. Although the various forms of appendicular inflammations have been repeatedly described and demonstrated, and the appropriate treatment of each form intelligently discussed and applied, I still think that we have yet much to learn before we can ultimately claim proficiency in dealing with them.

Believing that clinical knowledge is more instructive and practical than rehearsing the experiences and teachings of others, and that the careful study of a comparatively few cases will afford a more definite knowledge of the pathological conditions of the appendix and the indications for treatment than an indefinite amount of theory based on the casual observation of a very large number, I have selected the following cases for the purpose of illustrating the views now entertained on this subject, and crave your indulgence if I occupy your time unprofitably by dwelling too minutely on the minor details of each case:

**CASE 1.**—Miss J. B., a well-developed young lady, aged twenty-two years, enjoyed good health up to March, 1888. One day while at school she was taken with a severe pain in the lower portion of her abdomen, which continued for several days and obliged her to remain in bed for three weeks. During that time she was treated by a homœopathic physician, who said she had "inflammation of the bowels." For several weeks after that there was tenderness in the right inguinal region, and for the following two years she continued to have occasional attacks of a similar character, and always accompanied by derangement of her digestive organs. On October 25, 1891, I was called to attend her. Her temperature was 100°, pulse about 116, bowels constipated, and she complained of pain in the right side of her abdomen.

Pressure at a point two inches and a half from the right anterior superior spine of the ilium in the direction of the umbilicus, known as "McBurney's point," elicited acute pain. No tumor could be found. Absolute rest in the recumbent posi-

\* Read before the Kings County, N. Y., Medical Association, February 14, 1893.

tion, hot fomentations to the abdomen, gentle laxatives, and fluid diet were prescribed. The pain gradually subsided and there were no indications for further treatment. Although she did not appear sick after the first few days, her temperature remained at about 100°, and there was tenderness on pressure over the cæcum for a period of two weeks.

On June 24, 1892, I was again summoned to see her, and she presented all the symptoms of her former attacks excepting that the pain was more severe. On this occasion I ordered the application of a mercurial ointment, diluted with six parts of stramonium ointment, to the seat of pain, instead of the hot fomentations. She recovered from this attack in about one week. Since then she has had two light attacks, but by resting in bed and applying the mercurial ointment the pain ceased within a few days.

A few weeks ago she called at my office and I made an examination of her abdomen. There is no evidence of a tumor or induration, but there is a marked tenderness on pressure in the location known as the McBurney point. She informs me that any very active exercise, as dancing or going rapidly up or down stairs, will cause a moderate degree of pain in the right inguinal region, extending over the abdomen and down the right thigh. She now realizes the nature of her trouble, and knows that while her digestive organs are in good condition she is not so liable to a recurrence of these attacks.

This is evidently one of the cases which is called catarrhal appendicitis, in which we may assume that suppuration has not yet occurred, or, if it has, the pus was either absorbed or discharged into the bowel. There must have been more or less local peritonitis accompanying the several attacks, but the inflammation was probably of a plastic type and did not extend beyond the immediate vicinity of the appendix. The great contrast between this case and the next is worthy of special attention.

CASE II.—Miss M. C., a healthy young lady, aged twenty-three, on May 23, 1892, was quite suddenly seized with acute abdominal pain, which was continuous and severe throughout that night. The next day I was called and found her sitting up in the parlor. She did not complain of being very sick, but simply wanted something to relieve the "cramps in her bowels." Her temperature was 101°, pulse 120, bowels free, and her general appearance was fairly good.

An examination of the abdomen revealed a point of extreme tenderness in the right inguinal region, about two inches and a half from the anterior superior spine of the ilium in the direction of the umbilicus.

No tumor was perceptible. I was quite positive in my diagnosis of appendicitis, but unable to determine the character of the inflammatory process. It required considerable persuasion to make her realize the importance of remaining in bed and complying with my instructions. Hot fomentations were applied to the abdomen and small doses of sulphate of magnesium prescribed. A few moderate doses of opium were ordered to be taken only when the pain was severe. On the following day she appeared quite well and comfortable, but her pulse continued at 120 and her temperature had risen to 102°. Bowels had moved freely. There was slight dullness on percussion and acute pain on pressure at the typical point, extending toward the median line of the abdomen. On May 26th, the third day of the disease, the general symptoms were about the same and the local induration was more distinct and painful. On the fourth day the pulse was more rapid, the temperature had risen to 103°, and the tumor was well defined. The patient presented an expression of anxiety, and while the pain

continued in a moderate degree it did not increase in proportion to the other symptoms. I was now certain that an abscess had formed, and recommended an operation, but, at the earnest solicitation of the patient and her friends, I consented to wait another day.

By the fifth day her temperature had fallen to 102°, pulse 130, soft and weak, and her general appearance indicated great depression. It was evident that the patient was passing into a state of collapse, and that an operation offered the only hope of saving her life. She was carefully removed to St. Mary's Hospital, and, assisted by the house staff, I made the usual abdominal incision directly over the tumor. When the abdomen was opened the small intestines presented an intensely congested appearance and were adherent to the caput coli. While separating the adhesions I opened into an abscess cavity containing about three drachms of very offensive pus. This was carefully taken up on sponges, and the appendix, which was black and in a gangrenous condition, perforated at its base, was found on the inner side of the caput coli. While attempting to ligate the appendix at the proximal side of the perforation the ligature cut through the necrotic tissue, and the dead, offending organ was removed. Another attempt was made to close the appendicular opening, but the tissues were so necrotic and friable that they would not hold a ligature or suture.

After all the inflammatory products were removed, a square piece of iodoform gauze was laid over the wound, its center depressed to the bottom of the abscess cavity, and the pocket thus formed was packed with several strips of the same kind of gauze. By this means the intestines were walled off and the packing could be removed without disturbing the abdominal contents. A few sutures were placed in the upper angle of the wound and the usual dressings applied. On the following day the patient was bright and comparatively comfortable and her convalescence was uninterrupted thereafter.

The dressings were changed on the third day, and the wound was found in a very favorable condition. I was agreeably surprised to find the former site of the appendix covered over with a healthy exudation, and that there was no opening into the bowel. Within a week the abscess cavity was covered with healthy granulations, and the reparative process continued undisturbed until the wound was completely healed. The patient left the hospital July 21st, and has remained in perfect health since.

If you will permit me to take you over another phase in the history of this case you will readily understand how easy and apparently reasonable it would be to allow the patient to pass into a hopeless condition before resorting to any efficient treatment for her relief. When I first saw this lady she did not appear to be afflicted with any serious ailment, and as I was in a hurry to keep another engagement, it would seem quite natural to prescribe for her "colic" on general principles; but the danger of possible appendicitis flashed through my mind and I insisted upon a physical examination of the abdomen. By the second day the few doses of opium had given her a sense of false security, and she appeared so well that her relatives were willing to dispense with any further professional attendance.

Experience had taught me that in these cases subjective symptoms were not to be trusted, and that the omission of proper attention, even for a day, might prove disastrous. It is well known that septic peritonitis may exist without much pain or elevation of temperature. The conditions found in this case, when the abdomen was opened, showed

that the gangrenous appendix was inciting a septic peritonitis, and demonstrated the fact that the operation could have been done to a better advantage a day or two sooner, and that in all probability a further delay of twenty-four hours would have allowed the disease to progress to a fatal issue. To me this was a very instructive case, for it brought to my recollection the demise of several useful members of society whose deaths occurred under a similar train of symptoms, because the true pathological conditions were not clearly comprehended at the proper time.

CASE III.—Mr. J. C., aged forty-six years; occupation, a furrier. A robust man who had enjoyed good health up to September 14, 1892, when he began to have pain in the lower portion of his abdomen. While the pain was persistent and annoying, it was not very severe, and he continued at his employment as usual for the next three days. During that time his bowels were regular and his general health fairly good. On September 17th the pain suddenly became so severe that, to use his own expression, "it doubled him up" for some hours.

This pain was accompanied by nausea and was followed by a chill and fever.

Dr. J. R. Kevin, of this city, was called to attend him, and promptly made the diagnosis of appendicitis. After three days' observation and treatment, Dr. Kevin considered the case a proper one for surgical interference and he was sent to St. Mary's Hospital. He arrived there September 20th at 8 p. m. I saw him at 9.30 that evening, and upon examination found a well-marked tumor in the right inguinal region which was quite hard and not very painful on gentle manipulation.\* After the usual preparation an incision was made through the abdominal wall, over the tumor, and a hard mass, composed of omentum and inflammatory products, was exposed. While separating the adhesions around the tumor an abscess cavity was opened which contained about half an ounce of pus, which was removed with sponges. The mass was found to contain the ruptured vermiform appendix, which was given off at an acute angle from the outer side of the ascending colon at about an inch above its lower extremity. The appendix was ligated near the colon, severed, and the stump cauterized with pure carbolic acid. That portion of the omentum which was involved in the tumor was ligated in sections with catgut and cut off, and the entire mass was detached with the fingers from its surroundings and removed. The space was carefully cleansed and packed with iodoform gauze. About one third of the wound was closed with silk worm gut and the usual toilet made.

The next day the patient was comfortable and in a good condition; pulse, 90; temperature, 100°.

In a few days his pulse and temperature became normal and continued so throughout his convalescence. His bowels were moved on the second day and acted well thereafter. On the third day the dressings were removed and the wound cleansed and repacked with iodoform gauze, and subsequently they were changed every other day.

By the end of the third week the wound was closed, with the exception of a small sinus which led down to the stump of the appendix.

At about the fifth week small particles of feces began to escape from the sinus, and a probe could be carried directly through it into the colon. This fistulous tract was repeatedly cauterized with nitrate of silver, and various stimulating applications—such as peroxide of hydrogen, balsam of Peru, naphthalin, etc.—were applied at different times, but traces of fecal matter appeared at irregular intervals for a period of four weeks more. Then for three weeks the sinus remained as a

very small fistula from which only a little clear mucous escaped. This mucus evidently came from the mucus follicles in the stump of the appendix, and demonstrated the fact that the mucous membrane in the stump was the cause of the delay in the healing of the wound and shows one of the evil results of leaving any portion of the appendicular tissue remaining. The delay was very annoying, as the patient was in perfect health in all other respects.

Comparing the symptoms presented in this case before the operation with the pathological conditions found after opening the abdomen, I deem it proper to term it one of acute ulcerative appendicitis in which the plastic inflammation protected the patient from general peritonitis. It is fair to assume that the mild pain which simply annoyed the patient for the first three days of the attack was caused by the ulcerative process, and that a perforation of the appendix occurred on the third day when the violent pain was felt. Then a localized peritonitis was excited, but its extension was limited by the formation of an abscess wall composed of omentum and loops of small intestine, which were firmly bound together by the plastic exudation. This pathological condition illustrates the absolute necessity of surgical interference in this class of cases.

CASE IV.—Mr. S. H., a spare young man, aged twenty-one years, occupation bookbinder, walked into my office, October 14, 1892, and gave the following history of his ailment: Ten days before, while lifting a package of paste board on to a table, he was seized with an acute pain in the right lower portion of his abdomen, which obliged him to quit work and go home. Thinking that it was only a trifling disturbance in his bowels, he refused to have a physician called, but took a cathartic and remained in bed for the next three days, suffering only a moderate degree of pain. After the third day, while the pain in the right loin was quite constant it was not very severe, and he walked about more or less daily, and slept fairly well at night. As he came into my office I observed that he leaned forward and to the right side, stepping very carefully with the right leg. His pulse was 120, soft and compressible, and his temperature 101.4°.

On inspection, there was a well-marked fullness in the right iliac region. Pressure with one finger at the McBurney point did not elicit any special tenderness, but from a point an inch and a half in front of the anterior superior spine of the ilium, and extending upward and backward just above its crest to the right quadratus lumborum muscle, the tissues were tense, firm, and very painful. My diagnosis was that the tumor was a paratyphilitic abscess, which was burrowing toward the right. I advised him to submit to an operation on the following day, to which, after consultation with his parents, he consented. He slept well that night without an anodyne, and at ten o'clock the next morning his pulse was 112 and his temperature 100°. Notwithstanding this apparent improvement in his condition, he was then sent to St. Mary's Hospital, and, after the usual preparation, an incision about four inches and a half long was made about an inch outside the linea semilunaris and the peritoneal cavity deliberately opened. The intestines were held aside and protected with pads of sterilized gauze, and it was then seen that the tumor, commencing at the outer surface of the caecum, extended outward, upward, and backward to the lumbar muscles. While separating the tumor from the abdominal wall on the right of the wound, a quantity of fetid pus and a fecal concretion came into view.

The abscess cavity was cleaned out, and the appendix,



curved like the letter S, was found at the bottom completely invested with a false membrane of organized lymph, and presenting an opening at its extremity whence the faecal concretion escaped. The false membrane was peeled off, and the appendix ligated near the cæcum and removed. The stump was cauterized, the wound partially closed, the abscess cavity packed with iodoform gauze, and the usual dressings applied.

On the following day the patient was bright and comfortable. His pulse and temperature were nearly normal, and continued so throughout his convalescence. The wound was dressed on the third day, and every second or third day thereafter. On the tenth day the ligature which was placed on the appendix came away, and the wound was closing rapidly by healthy granulations. About this time the patient stated that he could occasionally feel air or gas escaping from the wound. An examination revealed a small opening in the stump of the appendix, through which a probe passed into the *caput coli*. This proved to be the appendicular canal through which the intestinal gases were escaping. Then the impossibility of effecting a permanent closure of the appendix with any kind of a ligature was forcibly impressed upon my mind. As it is impossible to make mucous surfaces grow together by holding them in apposition, it is but reasonable to expect that when the portion of the pedicle outside the ligature sloughed away, or the ligature became absorbed, the lumen of the remaining portion would still be patent. This subject will presently be referred to again. An effort was made to destroy the mucous membrane in the pedicle by cauterizing it with nitrate of silver, but the result was not very satisfactory; the canal remained open for a period of nine weeks after the operation, when it became obliterated by the surrounding granulations, and the wound finally closed a week later.

During the interval from the third to the seventh week after the operation small quantities of faecal matter passed out of the appendicular orifice at various times, as it did in the preceding case, showing that it is quite a common occurrence for faeces to pass from the colon into the appendix. I will here present for your inspection the last patient spoken of and his appendix, with the faecal concretion that caused its perforation. You will observe that the appendix is about four inches and a half in length, and presents a ragged perforation at its extremity. The faecal concretion is half an inch long and a quarter of an inch in diameter. This case represents a not uncommon feature of appendicular inflammations, in which the abscess develops at a considerable distance from the normal site of the appendix, and which in itself would be misleading if we did not bear in mind the great variety of irregularities connected with this disease. When I first saw this patient he stated that the pain was in his right side, and the tumor was virtually in the right loin, with little or no tenderness over the abdomen or at McBurney's point.

The appendix was found adherent to the lateral abdominal wall with its extremity upward. The plastic inflammation which accompanied and followed its perforation protected the peritoneal cavity from septic invasion and limited the suppuration to a small portion of the parietal peritonæum.

It may be considered imprudence on my part to advise an operation on a patient who had not yet received any treatment whatsoever, who was sufficiently well to walk to my office, and whose symptoms were apparently so mild in character. Why not try milder treatment first and watch its progress? The inflammation and swelling may subside and the dangers of an operation be avoided. I admit that up to the last few years such a course would seem proper for me

to pursue, but, in the light of our present knowledge, I would feel guilty of neglect of duty if by delay I failed to give the patient the benefit of my best judgment in the case. Considering the history, symptoms, and palpable signs, I believe there was more danger in delay than in a prompt and radical operation. One of the possible results of delay in this class of cases is illustrated by the following case:

CASE V.—On January 22d of this year I was called by Dr. Alexander Koch to see Mrs. S., aged thirty-seven years, who was then in the fourth month of pregnancy and had enjoyed good health up to about two months before. At that time she began to have pain in the right iliac fossa and above the crest of the ilium, which was accompanied by considerable nausea and occasionally vomiting. The pain was quite constant but not severe in character, and, as she presumed it was due to her pregnant condition, she paid no attention to it, but continued to perform her household duties for the following five weeks. During that time her bowels were very much constipated and required large doses of cathartic medicines to produce any movement, and every movement was attended with a feeling of weakness, nausea, and sometimes vomiting.

Since the second week of the attack she could lie on her right side with comparative comfort, but turning over on her left side would cause a dragging, painful sensation across her abdomen which compelled her to leave that position. This is a symptom which I have frequently observed in cases of appendicitis, but, so far as I know, has not yet been mentioned by any other writer on the subject. It is probably produced by the gravitation of the intestine from the right toward the left side, thereby making traction at the point of inflammation, thus producing the symptom alluded to. About the fifth week she noticed a swelling in the right iliac fossa which gradually increased and extended backward along the crest of the ilium. Shortly after this a lameness in her right hip, as she termed it, supervened, and she was obliged to keep her right thigh partially flexed and lean forward while standing or walking. She allowed a period of seven weeks to elapse before calling the attention of a physician to her trouble, and then only permitted him to prescribe for her without making an examination. Two days before calling me Dr. Koch examined her and found a swelling which I will presently describe, and informed her husband that her affliction was of a serious nature.

On my arrival I found her sitting up and noticed that she presented a sallow, muddy complexion, and that in walking to the bed she leaned forward and limped as if the right limb were shorter than the left. Dr. Koch informed me that her temperature was 98° in the morning and 100.4° in the afternoon. Pulse was 104, soft and weak. An examination revealed the presence of a tumor in the right side occupying the space between the lower border of the ribs and the crest of the ilium, extending downward and forward to its anterior superior spine and to the outer margin of the right rectus abdominis and backward to the quadratus lumborum muscle. The tissues covering this tumor were very tense and light pressure elicited acute pain. Guided as much by exclusion as by direct information, I ventured the opinion that this tumor was a paratyphlitic abscess, but, as I was not positive of my diagnosis, I requested Dr. J. D. Rushmore to see the case with us.

Dr. Rushmore responded promptly, and, after an examination of the case, stated that he was inclined to treat the disease as an abscess, but indisposed to express an opinion in regard to its ætiology.

An exploring needle was inserted just above the crest of the ilium about an inch in front of the quadratus lumborum muscle,

and, as the appearance of pus confirmed the diagnosis, a scalpel was introduced along the needle into the abscess cavity and a quart or more of fetid pus evacuated.

The opening was enlarged longitudinally to about an inch and a half in length, and subsequently the abscess cavity was irrigated with a warm solution of chloride of sodium, a drachm to the pint, and a drainage-tube left in the wound. The next day the patient was bright and comfortable and very grateful for the relief which she experienced. The abscess cavity was then curetted and considerable necrotic tissue removed. On introducing the forefinger through the wound, several pockets were found posteriorly, but the greater portion of the abscess cavity was in the right iliac fossa, between the caput coli and the ilium, and its inner wall was felt extending upward along the ascending colon. The cavity was daily irrigated and loosely packed with iodoform gauze, and it soon presented a healthy granulating surface. The general health of the patient improved rapidly and her complexion became clear and ruddy. The posterior portion of the abscess cavity closed within a week, that portion in the iliac fossa rapidly filled up with healthy granulations, and the wound healed by the end of the third week. Although it is only twenty-three days since the opening was made, the patient is restored to the enjoyment of good health in every respect.

While we have not been able to demonstrate that this is a case of appendicitis, I have no doubt now about the propriety of reporting it as a paratyphlitic abscess with an ætiology quite similar to the preceding case. It is a good illustration of how generous and conservative Dame Nature can act in constructing an abscess wall which not only preserved the life of this woman, but that of the fetus *in utero*. A description of the various forms of appendicitis would be incomplete if that variety in which septic peritonitis rapidly follows the onset of the attack were omitted.

Within the last year I have witnessed two cases of that class, but am not in possession of the history or symptoms of either case, and only know that the abdomen was opened within a few days after the prominent symptoms were recognized, and that a large quantity of pus was found in the general peritoneal cavity in each case.

The vermiform appendix was diseased in both cases, but whether the septic peritonitis resulted directly from a perforation of the appendix or the rupture of a perityphlitic or paratyphlitic abscess I am unable to say. I simply mention these facts as an illustration of the insidious character of this most serious form of the disease.

As this paper has already exceeded the limits of my original intentions, I will refrain from any further remarks on the medical treatment of this multiform disease and refer to only one point in the technique of the operation of appendicectomy, if I may be permitted to apply the term, which Dr. Rushmore suggested for the operation at one of our meetings in 1891.

It is worthy of reflection that the recovery in Cases III and IV, reported in this paper, was very much delayed by the failure of the ligatures to effect a permanent occlusion of the canal in the stump of the appendix. This is explained by considering the anatomy of the tissues entering into the structure of the appendix and its pathological surroundings at the time of the operation.

We know that a ligatured stump will not become en-

capsulated in an open wound attended with more or less suppuration; consequently the ligature must either become absorbed or slough away, and, as the mucous surfaces of the canal can not unite, its closure can only be effected by the slow and uncertain process of granulation from and about its extremity. For these reasons I do not deem it good surgery to apply a ligature of any kind to the vermiform appendix, although it has been extensively practiced by the eminent surgeons who have been pioneers in this special line of surgical work, and is described as the proper treatment in a recent publication—*An American Text-book of Surgery*. I consider it better practice to operate in accordance with the method adopted by Dr. Robert T. Morris and described by him in the *New York Medical Journal* of October 15, 1892, and in the *Medical Record* of January 14, 1893.

The points which I desire to emphasize in this operation may be briefly outlined as follows:

Cut off the appendix quite close to the cæcum, ligate or suture the protruding collar of mucous membrane, invert the remaining portion of the stump so that the peritoneal surfaces come together, scarify the peritoneal margins to secure their firm adhesion, and close the opening with catgut, using the Lembert suture.

By this method, where the tissues are sound and it is possible to pursue this plan, a much more rapid closure of the wound may be obtained, and there will be no diverticulum remaining to invite further trouble.

**The Eleventh International Medical Congress and the Steamship Companies.**—The American National Committee makes the following announcement:

"The North German Lloyd, 2 Bowling Green, N. Y., offers a reduction of twenty-five per cent. to the medical men going to and coming from the Eleventh International Medical Congress, on the steamer Werma, which is to sail from New York on August 5th and September 9th, and on the steamer Fulda, on August 19th. Both these steamers sail to Genoa. The same reduction will be made for the return trips in October and November, on the same steamers, and for the company's Saturday, off Bremen (Sunday, off Southampton), steamers.

"The Hamburg-American Packet Co., 37 Broadway, N. Y., 125 La Salle Street, Chicago, offers a reduction of twenty-five per cent, both out and return, for all its steamers during the year 1893.

"The Compagnie Générale Transatlantique, 3 Bowling Green, N. Y., offers the rates which are allowed French officers—that is, \$63.50 for an \$80 accommodation and \$91.50 for a \$120 accommodation.

"Five other lines decline to make any satisfactory arrangements."

**The Medico-legal Society.**—The programme for the meeting of Wednesday evening, the 12th inst., in Brooklyn, included a paper entitled A Case of Traumatic Psychosis following Fractured Skull—the Medico-legal Aspects, and a discussion of the question How can we Prevent Cholera? to be opened by Dr. George M. Sternberg, of the army.

**The New York Post-graduate Clinical Society.**—The programme for the meeting of Saturday evening, the 8th inst., included a paper by Dr. H. H. Whitehouse on The Association of Several Skin Affections upon the Same Individual—Points in Diagnosis and Treatment; and a report of a case of hæmatosalpinx, by Dr. A. C. Stansard.

**The New York Neurological Society.**—At the meeting of April 4th officers for the ensuing year were re-elected as follows: President, Dr. M. Allen Starr; vice-president, Dr. Bernard Sachs; secretary, Dr. E. D. Fisher.

**The Medical Society of London.**—The *British Medical Journal* announces the election of Dr. Robert Barnes to honorary membership.

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SO-CALLED HYPODERMIC TRANSFUSION.

PROFESSOR LUTON, director of the Reims School of Medicine, writes in the *Gazette des hôpitaux* for February 2d concerning the virtues of a certain artificial serum devised by him, usually composed of a hundred parts of distilled water, five of crystallized sodium phosphate, and ten of sodium sulphate, boiled together and filtered. He insists that the sodium phosphate, the *sine qua non* of any artificial serum, shall be the *sal mirabile* [perlatum] of the old chemists, having the formula  $(2\text{NaO} + \text{HO})\text{PO}_3 + 24\text{HO}$  [according, apparently, to the old notation]. The sulphate is added chiefly to bring the solution to the desired density. The subcutaneous use of this solution is termed, quite irrationally, "hypodermic transfusion," or, as a paraphrast contributing to the *Revue générale de médecine, de chirurgie et d'obstétrique* puts it, "nervous transfusion." The excuse for calling this procedure transfusion is found in the alleged similarity of the results to those of transfusion of blood. Five grammes (about a drachm and a quarter) are to be injected at once, and only once a month is it necessary to administer an injection.

The immediate effects of such an injection of the artificial serum are said not to be pronounced, especially if the liquid is warmed a little or mixed with glycerin. As the result of its absorption, however, there is a general feeling of warmth, together with moderate functional excitement. Sometimes there is a little headache, but at the same time the subject is conscious of a heightened capacity for work and thought. The first moments of excitement passed, the consecutive effects develop, according to the nature of the case, and persist for a number of days, to the patient's great advantage. It is not to any special disease that the remedy is applicable, but rather as an auxiliary in a multitude of morbid or semi-morbid conditions: organic weaknesses, senile enfeeblement, tabetic affections, retarded development in infancy, athrepsia, chronic dyspepsia, etc. A few representative cases are cited in brief, and the author declares that he is using the injections constantly in his hospital and private practice with the happiest results. To many an enfeebled person, to many an old man plunged into senile debility, he says, their use has brought back vigor and a renewal of life.

There are, however, some special states in which the use of the injections has proved of decided advantage. Of these, cholera is an example. Moreover, the serum is a useful vehicle for the subcutaneous administration of various medicaments, especially acetate of copper, which the author uses largely in tuberculous affections, and almost exclusively in the form of a solu-

tion of one part of the copper salt in five parts of the artificial serum.

The similarity of the effects alleged for the Brown-Séquard organic liquids and those of this artificial serum is set forth, and the advantages of the latter are insisted on; the greater facility of its production and the absence of danger in its employment. Finally, the author says: A monthly injection of five grammes [about a drachm and a quarter] of the artificial serum of the composition mentioned may maintain a feeble invalid in a state of nervous energy sufficient to enable him to earn his living.

ŒDEMA LABIORUM PUERPERALE.

PROFESSOR SCHAUTA, of the University of Vienna, recently delivered a clinical lecture concerning that complication of the puerperal state which is designated by him *œdema labiorum eclampsia* consequente. The lecture is reported in the *Medical Press and Circular* for January 4th. The patient shown was a primipara of twenty-six years, who had had extensive œdema lasting for about half of the eighth month of pregnancy and who had had five eclamptic seizures, all of them post partum. She had been treated by free puncturing of the labia during the first four days that she was under observation at the hospital.

Schauta's experience is that the irritation caused by the slow escape of the liquid and its constant flow over the genitals are all that is necessary to induce labor in a very short time. In both hospital and private practice he has met the indication for premature childbirth in this way, if œdema was present. He has seen no case in which any other procedure was required. If there is no desire to bring on early labor the puncturing of the œdematous parts must not be resorted to, but the reduction of the swelling must be attempted by means of warm baths and compresses.

In this case of Schauta's an examination of the urine had shown it to be albuminous, with a large proportion of granular casts. This condition persisted after the birth of the child, which occurred on the second day after the first puncturing was done. It began to subside on the fifth day after the woman's admission, and on the fifteenth neither albumin nor casts were found. The patient appeared in good health, but was not allowed to leave the hospital until a longer treatment by baths had been employed and all trace of œdema had disappeared.

Regarding the ætiology of post-partum eclampsia, Schauta has nothing new to offer. The question, he says, is still shrouded in much doubt. According to him, it is not sufficient to say that in all cases that have been fatal renal lesions have been present, for the reason that these lesions may be secondary to some complication of pregnancy which, especially in primiparæ, may induce the renal disease. In this case Schauta followed out the hint given by Blanc, of Paris, that puerperal eclampsia was due to a micro-organism, and caused a careful examination to be made of the blood and other fluids, but the results were of a negative character. The fact that Gerbes, of Halle, has been able to isolate a micro-organism from the blood of an



eclamptic patient, and from cultures and inoculations of lower animals to induce in the latter convulsions resembling those of puerperal eclampsia, is a strong bit of testimony, but without confirmation can not be received as proof that the micro-organism is the sole cause. The convulsions observed in these animals were similar to those that affect many quadrupeds from a variety of causes, and may not have been solely due to the inoculated micro-organisms.

## MINOR PARAGRAPHS.

### THE TREATMENT OF INFANTILE CONVULSIONS.

THE *Deutsche Medizinisch-Zeitung* for March 13th gives an abstract of an article by Dr. Descroizilles, published in the *Archivio italiano di pediatria*, the substance of which is as follows: The child should be placed in a cool, airy chamber, and its clothing removed at once. The physician should then satisfy himself as to the existence of visceral irritation, as from intestinal worms, and lay the child on a rather hard bed. Cold frictions may then be applied, or the child may be given an ordinary tepid bath or one with mustard added. The frictions may be applied to the whole body. In addition, cold douches may be applied to the head or a protracted forcible stream of water directed upon the fontanelle. In convulsions occurring during a feverish attack the cold bath can not be highly recommended. If intestinal irritation is present, vomiting should be induced by tickling the uvula or by means of an emetic; if there is tympanites, a laxative should be given, such as calomel or castor oil; in case of worms, an anthelmintic should be given. If there is cerebral congestion, a few leeches may be applied over the mastoid process, sometimes also to the lower part of the thigh; even venesection may be employed in sucklings of a strong constitution. At the same time warm, stimulating applications should be made to the lower limbs or compression of the carotid resorted to. Chloroform given by inhalation is only temporary in its action, and repeated recourse to it is dangerous. If the tendency to convulsions persists, zinc oxide and hyoscyanus may be given, but better results follow the use of sodium bromide with from seven to fifteen grains of chloral hydrate in young children, or from a drachm to a drachm and a half in those verging on puberty. These large doses of chloral are to be used with the greatest circumspection. When the attack is over, the child must be kept absolutely quiet for a considerable length of time, tonics should be employed, and the diet should be strictly regulated. From time to time small doses of chloral hydrate, valerian, and zinc oxide are to be given.

### THE NORTH CAROLINA STATE BOARD OF HEALTH.

THE March number of the *Bulletin* of this important organization reports that a new bill has been passed by the Legislature which will materially affect the future operations of the board. The sanitary functions and powers of the board will probably be amplified in order that it may protect the State against cholera, but the hold of the State Medical Society appears to have been weakened. For many years that society has been represented by six of the nine members, and these six were each elected to hold office for six years. The Governor had the right to appoint three commissioners, whose tenure of office was two years. Hereafter, if the recently proposed act becomes operative, the medical society will be entitled to only four members of the board, while the Governor will nominate five, and all members, however constituted, will serve for two

years only. The *Bulletin* offers no comment on the probable future influence of this kind of legislation, but it quietly remarks that "in other respects it was passed essentially as introduced, and we feel that the cause of preventive medicine in North Carolina has been greatly strengthened and advanced." The query naturally arises in medical minds, how any great advance can follow the transfer of the management of the board away from the State society to the best Governor the State can possibly put into office—and the best men do not always get there. If the law has, in fact, been mischievously conceived, the medical profession will probably be strong enough to effect its amendment at the next session of the Legislature. Every registered physician of the State is to be supplied with a copy of the new law.

### PARATHYROID GLANDS IN MAN.

At a meeting of the Paris Medical Society of the Hospitals, held on March 17th, reported in the *Union médicale* for March 21st, Dr. Chantemesse and Dr. Marie described some little glandular organs found in the neighborhood of the thyroid gland in man, and confirmed Sandström's description of parathyroid glands. They form two groups, one of which, the more important, is situated at the level of the point of penetration of the inferior thyroid artery. This group consists of two or three glandules, none of them larger than a lentil, round, ovoid, or kidney-shaped. The other group, generally less voluminous, is at the level of the point of penetration of the superior thyroid artery. These little glands are free or surrounded with connective tissue and provided with a minute vascular pedicle. Their structure is very different from that of lymphatic ganglia. They are divided into lobules by a connective-tissue stroma, and are traversed by numerous capillary vessels. The lobules are formed of little cells sometimes disposed irregularly, sometimes arranged in a circle, the periphery of which is bordered with little cubical cells and the center filled with irregularly disposed elements. Occasionally true tubes of epithelial cells may be made out, and at the periphery of the glands there are often to be seen little rounded masses, the central part of which contains a material having a colloid appearance. Stress was laid on the fact that these glandules were situated externally to the capsule of the thyroid gland, and it was urged that they be left in cases of thyroidectomy, for they were capable of a compensatory function analogous to that of the pituitary gland.

### VESICAL TENESMUS CAUSED BY FARADIZATION.

IN the March number of the *Annales de la Polyclinique de Bordeaux* Dr. G. Liaras relates the case of a boy, seven years old, who, having been brought to Dr. Loumeau's clinic on account of "essential" incontinence of urine, was subjected to treatment by what the author calls Guyon's method of faradization. An olive-tipped electrode, with the bulb as large as a No. 10 sound, was inserted into the urethra as far as the membranous portion. This was connected with the negative pole. The positive electrode was applied to the hypogastrium, and a feeble current was allowed to pass for two minutes. After the second application, four days later, the patient was unable to urinate for four hours. The retention was painful and the pains extended into the penis. The trouble yielded to very hot poultices applied to the belly. Urination and defecation then took place simultaneously, and the remark is made that the current had caused both vesical and rectal tenesmus. Seven subsequent applications, each of three minutes' duration, were well borne, and at the end of two months after the last one there had been no recurrence of incontinence.

### ALLEGED REMUNERATION FOR A PUBLIC MEDICAL SERVICE.

A PHYSICIAN living in Maison-Lafitte, France, having, at the request of the police, viewed the body of a foundling and made a report in writing to the proper official, received as his remuneration an order for three francs payable only on his presenting himself in person at some time within specified hours at an office in Saint-Germain. He spent three hours in making the journey to Saint-Germain and back, besides 1 fr. 40 for omnibus fare. Estimating the value of his lost time at 7 fr. 50, he counted his entire outlay as 8 fr. 90. Hardly had he reached home when he received a communication from the disbursing office informing him that an irregularity had been discovered in the money order, which was inclosed, and asking him to return the three francs that had been paid to him, send the order to Versailles for correction, and again present it for payment. The *Province médicale*, which tells the story, says that the doctor is tranquilly staying at home awaiting arrest, and adds that if that takes place the farce will be complete.

### BROWN-SÉQUARD'S LIQUID AS A REMEDY FOR CHOREA.

At a recent meeting of the National Society of Medicine of Lyons a paper was read on the treatment of chorea and of incontinence of urine with the Brown-Séguard liquid. In the discussion, reported in *Lyon médical* for March 26th, Dr. Teissier declared that he had observed convincing instances of the happy effects of injections of spermine in choreics. He cited the case of a young girl whose chorea had lasted for seven months, but was cured by three injections. He then went on to say that he had used the Brown-Séguard injections five hundred times; that it was important to use a good preparation, such as that made at the College of France, which was not productive of pain, although it was very active; that all antiseptic precautions were necessary; and, above all, that large doses should be reached. He added the startling statement that Brown-Séguard estimated that one might inject a tenth of the weight of the body without danger; at least, that is what the report makes him appear to have said, but it is probably a printer's error.

### CHOLERA AND FRUIT.

THE Imperial Health Office at Berlin has issued a notice to the effect that a bacteriological research has been made to show what dangers of cholera, if any, inhere in the importation of fruits from the Mediterranean. It has been demonstrated that the cholera spirillum is destroyed in a few hours after being in contact with the cut surface of a lemon or that of an orange. The spirilla retain their activity for a longer time, however, on the uninjured exterior of these fruits, but even there they do not survive twenty-four hours. This shortened vitality of the micro-organisms is believed to be due to the effect of the high acidity proper to the fruits named. There will be no restrictions placed upon the sale of those fruits even if they are brought from places where cholera has been prevalent. There is no authentic account of a single case of cholera having been conveyed by means of either oranges or lemons.

### THE USE OF THE BROMIDES IN LARGE DOSES.

In the March number of the *Revue de médecine* there is an article by Dr. Féré, of the Bicêtre, which concludes with enjoining the utmost watchfulness of patients who are under treatment by means of the bromides in large doses. They should be examined frequently in a state of nudity, both to

ascertain if they have any cutaneous lesions and to weigh them. When the skin shows the effects of bromine, or when there is a loss of weight that is not of the most fleeting character, the state of the digestive tract should be watched over with the greatest care, especially if the patient is physically or morally depressed, and most of all if the temperature is notably low. There must now be no temporizing; the use of the drug should be stopped at once, and its elimination by the intestines hastened with purgatives, and that by the skin with subcutaneous injections of pilocarpine.

### THE TREATMENT OF PARALYSIS AGITANS.

IN a therapeutical periscope prepared by Dr. Henry Huchard, published in the *Revue générale de clinique et de thérapeutique* for March 29th, Dr. Mendel, of Berlin, is cited as having produced notable abatement of the tremor of paralysis agitans by the use of subcutaneous injections of from two to three decimilligrammes of duboisine three times a day. In so short a time as fifteen minutes after an injection the trembling of the hands may be so moderated as to enable the patient to write more legibly. Dr. Grasset and Dr. Sacaze are mentioned in the same summary as having published in the *Semaine médicale* an account of notable amelioration of the symptoms and improvement of the patient's general condition as the result of the administration of sodium borate, beginning with four grains four times a day, and gradually increasing the doses to two or three times as much.

### A DIPLOMA DEALER SENT TO JAIL.

ON April 7th an aged dealer in fraudulent medical diplomas, named Alfred Booth, was sentenced to six months' imprisonment in the penitentiary. He pleaded guilty to a charge of selling for fifty dollars a signed and sealed diploma, a crime that might have been made the basis of a prosecution for felony; but the accused was permitted to plead to a lesser crime—that of misdemeanor. Under this procedure the judge passed sentence, omitting to impose a fine and imposing the utmost limit of imprisonment, six months. The judge remarked that this kind of punishment was more deterrent than that by fines, and that he thought that the diploma-selling gentry would give New York a wide berth for some time to come.

### THE RHOPALOCEPHALUS CARCINOMATOSUS.

UNDER this name Dr. A. Korotnew describes in *Vratch*, 1893, No. 2, a parasitic organism observed by him within the cells of a cancer of the lip. According to a summary given in the *Centralblatt für Chirurgie* for April 1st, it is very much like one briefly described by Sawatschenko in the last-named journal, and may be identical with it. It is referred to the *Gregarina*, and Korotnew attributes the formation of pearls to its presence. At least the adult forms have been found solely in the center of such a formation, and have been absent from it only when there has been granular degeneration of the cells forming the pearls, an occurrence that seems to be destructive to the parasite.

### THE PROGNOSIS OF ALCOHOLIC PARALYSIS.

IN the *Gazette des hôpitaux* for March 2d Dr. S. Arnaud relates the case of a woman, twenty-seven years old, who had an attack of delirium tremens with complete paralysis of the limbs, especially of the extensors, hyperesthesia, muscular atrophy, and the reaction of degeneration. After the delirium there was loss of memory. She ultimately recovered completely from the

paralysis. The author, whose article is summarized in the *Gazette hebdomadaire de médecine et de chirurgie* for April 1st, then reviews the various forms of alcoholic paralysis, and shows that they generally end favorably.

#### CAFFEINE-IODOL.

In the April number of the *American Journal of Pharmacy* Mr. Frank X. Moerk gives an abstract of an article by Koteschewer, in the *Pharmaceutische Centralhalle*, concerning a crystalline addition product obtained by mixing alcoholic solutions of caffeine and iodon in molecular proportion. This caffeine-iodon contains 74.6 per cent. of iodon and 25.4 per cent. of caffeine, and is described as light-gray, odorless, tasteless, and nearly if not quite insoluble in most solvents. The compound is permanent, and is therefore considered worth trying as a substitute for iodon, which, on prolonged keeping, liberates iodine and thus has an injurious effect.

#### OIL OF AMBER.

In the *British Medical Journal* for April 1st Dr. William Murrell speaks of this substance as of value in flatulent dyspepsia and in hysteria accompanied by globus, and cites Wood as stating that in hiccough it is probably the most efficient remedy except musk. It is given in doses of from ten to twenty drops. As to its external use, it enters into the composition of two old-fashioned remedies, Roche's embrocation and Haarlem oil, frictions of the spine and chest with which are reputed very efficacious in whooping-cough and in coughs. A good liniment, says Marrell, is made by mixing equal parts of oil of amber, spirit of camphor, and spirit of hartshorn.

#### THE HOUSE STAFF OF THE NEW YORK HOSPITAL.

The *One hundred and twenty-second Annual Report of the State of the New York Hospital and Bloomingdale Asylum*, for the year 1892, recently published, contains an addendum of unusual interest in the form of a list of the house physicians and house surgeons for the last hundred years, specifying the term of service of each. The preparation of this list evidently entailed a great deal of labor upon the compiler, Mr. Henry W. Crane, the secretary of the board of governors, to whom great credit is due for its accuracy.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 11, 1893:

DISEASES.	Week ending Apr. 4		Week ending Apr. 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	5	2	13	4
Typhoid fever.....	17	6	15	4
Scarlet fever.....	172	13	220	19
Cerebro-spinal meningitis.....	13	9	10	7
Measles.....	96	4	117	7
Diphtheria.....	115	41	132	55
Small-pox.....	9	3	9	2

**Columbia College General Catalogue.**—At a meeting of the trustees of Columbia College, held on the 6th of March, the publication of a new general catalogue of officers and alumni was authorized, and a committee, consisting of Professor J. Howard Van Amringe and Mr. John B. Pine, clerk of the board, was appointed to prepare the same. The new edition, which is to be issued in 1894, will be the eleventh since the foundation of the college, and will be also the most elaborate

and comprehensive. The dead and living alumni of the college now number considerably more than eleven thousand. In previous catalogues all alumni have been divided into schools and arranged by classes, with an alphabetical conspectus. Only the degrees of the graduates were added to the names. It is the intention of the present committee, for the first time, to supplement the names of living alumni with their addresses and with such further information as may properly enter into a work of this description, including the professions of the men, their degrees, the colleges where they were granted, their titles, judicial, military, clerical, or political, etc. While the committee is in possession of the present addresses of a great number of the alumni, the list of graduates whose whereabouts are unknown is still appalling. To locate these men will be a difficult and troublesome task, which can only be accomplished by patient and persistent effort on the part of the committee, entailing a great amount of clerical work, correspondence, etc., and by the cordial co-operation of the alumni themselves. It is this co-operation which is most earnestly desired by the committee, and they appeal to every alumnus of the college, no matter of which school, to assist them with whatever pertinent information may be in his possession. It will at least be possible for every graduate of Columbia who reads this to forward to the committee his own name, class, and present address, with such other facts regarding himself as he deems material. The list of the missing among the graduates in medicine is, notwithstanding the excellent catalogue of the College of Physicians and Surgeons, published in 1891, especially lengthy. Physicians holding diplomas from the medical school are most urgently requested to respond. Alumni who may be so far interested in the progress of this important undertaking as to go beyond the data concerning themselves will confer a special obligation upon the committee if they will inform them (1) of any living graduate known to be now residing or practicing his profession outside of the United States, with his address and class, when known; (2) of the death of any graduate occurring within the past five or six years, date and place, when known; (3) of recent changes of address among alumni; (4) of anything else suggested by the foregoing description of the committee's intentions. The work, when completed, will be circulated generally among the alumni, and it is hoped that it will exert an important and sensible influence in bringing them into closer union, besides serving many useful purposes that need not be here detailed. All correspondence may be addressed to the Committee on the General Catalogue, Columbia College, New York city.

**Politics and Asylum Appointments.**—The *American Journal of Insanity* for April contains the following timely editorial article, entitled *Are Asylum Physicians Party Pensioners?*: "The notion that public officers are the pensioners of a party, not the servants of the whole people, seems to die hard. The prospect appears to be that the officers of all the hospitals for the insane of the State of Illinois will be turned out to make room for members of the political party which, after an outing of thirty-five years, has once more gained the upper hand. It is true that the present Governor, in his canvass, made charges of extravagance and mismanagement against those institutions, but we presume that no one will seriously maintain that a lack of confidence in their management is the only, or even the principal reason for so sweeping a change. It is also true that, so far as one wrong can justify another, the course of the Republican party, during the long period of its dominance in the State, has afforded an excuse for such a course. Only Republicans have been appointed on the board of trustees, and we understand that the officers of the hospitals have been regularly assessed a portion of their salaries for the campaign funds. It is not long since the superintendent of the hospital at Anna was driven out of office with little or no pretense of concealment of the fact that the ground of his dismissal was his lukewarmness in partisanship, and from all that we can learn, his successor has not erred in that direction, although his attainments as an alienist have not, we believe, even yet, earned him any very wide celebrity.

"We do not suppose that if a member of Governor Altgeld's family were to become insane, and he were looking for a suitable private hospital, it would ever occur to him to inquire into the physician's views on the tariff. We have no doubt that multitudes of those who will ap-



pland his action in this matter, or take it as a matter of course, employ, by choice, physicians of a different political faith from their own in their families, and would laugh at the idea that a man's political views have anything to do with his professional competency. It is the view that the salaries of these offices are not, primarily, the reasonable compensation for honest and faithful discharge of their duties, but the reward of activity in an entirely different field, that allows people to view with approval or indifference such changes, entirely without regard to the merits either of those who are turned out or those who are put in.

"The pernicious effect of such a policy is so plain that we should feel as if we were insulting the intelligence of our readers by arguing the question. Men whose aspirations are for professional eminence and usefulness will hesitate about accepting positions in which such qualities count for nothing. Even if competent men are secured, they are sure, in a State in which parties are pretty evenly balanced, under such a system, to be turned out before they have acquired the experience that will enable them to do their best work. The inevitable tendency, under such conditions, is to the filling of the offices by men whose only object is to make money out of them, and who, knowing that the time is short, will 'make hay while the sun shines.'

"We have no doubt that, in time, the mischief of treating the funds provided for the relief of the unfortunate as plunder will become so plain that it will be no longer possible in a government like ours. But we fear that a good many object lessons will be needed first, and in the mean time the insane must suffer. We shall be as much surprised as gratified if the medical profession of Illinois, without distinction of party, should denounce the iniquity as it deserves. In the mean time, we believe it is the right and the duty of the American Medico-psychological Association to scan critically the qualifications of the men who profit by the misfortunes of its honored members, should they apply for admission."

The *Journal* also quotes the following letter from Dr. D. Hack Tuke to the editor of the *British Medical Journal*, April:

"The American papers report a proceeding on the part of the Governor of Illinois which ought to be stigmatized in the manner it deserves by every medical journal. The old country has many faults. It may learn many things from America. There is one offense, however, of which it is not guilty—that of making changes in the appointments held by medical men at the head of public institutions on a change of government; yet this has just been done in the State of Illinois.

"Dr. Dewey, the medical superintendent of the Kankakee Asylum, is to be deposed from an office which he has held with so much credit to himself and advantage to the patients for many years. I speak from personal knowledge when I say that this physician is an honorable man, free from reproach, and devoted to the institution which he has made a great success under the exceptional difficulties which a new departure from the old lines has necessitated—the experiment, namely, of providing a number of separate buildings for the patients in addition to the central asylum. It has demonstrated how much good may be done in this direction, and has exercised a great influence upon the construction and arrangement of similar institutions, in carrying out the intentions of Mr. Frederick Wines and others in regard to segregation as opposed to herding thousands of patients together in one monster building.

"Dr. Dewey has solved a difficult problem, but now that the tide of political feeling has taken a certain turn, it has swept him away, regardless of his admirable work, and he is to be superseded by another man. That his successor may be a good physician and capable of filling this responsible post I do not for a moment call in question, but the gross injustice done to a worthy medical officer, on purely political grounds, remains unaltered, and is a serious reflection on the system which permits it."

**Changes of Address.**—Dr. Edward C. Mann (sanitarium), to Flatbush, Brooklyn; Dr. B. Sachs, to No. 21 East Sixty-fifth Street.

**The Death of Dr. William P. Seymour, of Troy, N. Y.,** is announced as having taken place on Friday, the 7th inst. The deceased was a graduate of the medical department of the University of Pennsylvania, of the class of 1848. He was eminent as an obstetrician and gynecologist and esteemed in the profession for the ardor with which, on occa-

sion, he advocated what he looked upon as for the honor and glory of physicians as a class. He was one of the original members of the New York State Medical Association.

#### Society Meetings for the Coming Week:

**MONDAY, April 17th:** New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, April 18th:** New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburg, N. Y., Medical Association; Passaic, N. J., County Medical Society (annual); Baltimore Academy of Medicine.

**WEDNESDAY, April 19th:** Medical Association of Georgia (first day—Americus); New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; Harlem Medical Association of the City of New York; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society; Windham, Conn., County Medical Society (annual—Plainfield); Middlesex, Mass., South District Medical Society (annual—Waltham).

**THURSDAY, April 20th:** Medical Association of Georgia (second day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private); Tolland Conn., County Medical Society (annual).

**FRIDAY, April 21st:** Medical Association of Georgia (third day); New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

**SATURDAY, April 22d:** New York Medical and Surgical Society (private); Worcester, Mass., North District Medical Society (annual—Fitchburg).

#### Letters to the Editor.

##### CHLOROFORM ANÆSTHESIA AS AN AID IN THE DIAGNOSIS OF LARYNGEAL OBSTRUCTION.

29 EAST THIRTY-FIRST STREET, March 14, 1895.

*To the Editor of the New York Medical Journal:*

SIR: Reading the "minor paragraph" in the *Journal* of March 4th, Varieties of Obstructed Respiration, has led me to call your attention to a suggestion which I made in the January meeting of the New York Clinical Society. The suggestion was this: In cases of laryngeal dyspnoea, where there is doubt as to whether the dyspnoea is due to mechanical obstruction or to spasm, it is a simple matter to give a child enough chloroform to relieve the spasm, if it exists; in cases of simple croup this procedure is sufficient to relieve the symptoms of obstruction and to satisfy one that no mechanical obstruction exists—at least not enough to demand operative interference.

In a case of membranous laryngitis recently under my care in St. Mary's Free Hospital for Children, the anæsthetization produced by a small amount of chloroform relieved the dyspnoea, which was present, sufficiently to satisfy me that no operation was urgent; the next day the same procedure did not relieve the dyspnoea and an O'Dwyer tube was introduced, which gave relief. As bearing on this question I append a paragraph cut from the March number of the *Medical World*:

"Dr. Betz reports the case of a child, aged eighteen months, that presented the typical symptom of laryngeal croup. The case appeared so hopeless that tracheotomy was, although proposed, rejected. Three drops of a mixture of ether sulph. three parts, acetic ether one part, menthol 0.1 part, were ordered to be inhaled every quarter of an hour, just as chloroform is inhaled. It was hoped that the cold from the evaporating mixture would contract the surface blood-vessels of the larynx, and

thus reduce the edema present. The child was seen again in two hours, and the condition had somewhat improved. The etherization to be continued, three to four drops every half-hour. After six hours the condition was unmistakably better—so much so, in fact, that the etherization could be dispensed with. A piece of intestine filled with ice was placed around the child's neck. After this, progress was so rapid that in twenty-four hours the child was out of danger.—*Archives of Gynecology.*"

GEORGE MONTAGUE SWIFT, M. D.

## Proceedings of Societies.

### PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Meeting of March 8, 1893.*

**Hypodermic Medication in Syphilis.**—Dr. L. WOLFF read a paper of which the following is the substance:

Among the therapeutic methods which are largely employed on the continent of Europe, but have found very few adherents in this country is, no doubt, the hypodermic treatment of syphilis. Although proposed and practiced in the early part of 1860, it was some time before it was extensively employed, even abroad. This was, no doubt, largely due to the fact that it was little understood, that, from timidity, the doses employed were by far too small, and results, therefore, not brilliant, as well as from fear of the formation of abscesses and the necessary amount of pain accompanying such medication. The pain accompanying it is to-day still an argument against its employment that is not to be overcome. If we, however, consider that in the principal medical centers of continental Europe little or almost no mercury is given internally any more, even the pain accompanying and following the injections must be outweighed by the results. While the first experiments on hypodermic medication in syphilis were made with solutions of corrosive sublimate, the insoluble mercurials were soon substituted by Scarenzio and others. Therefore we may divide the mercurials into those preparations which are soluble and those which are insoluble. It was found that if insoluble mercurials were introduced beneath the skin they were rapidly absorbed, that they were soon found in the urine, and also often produced the untoward effects of mercury, besides their characteristic inhibiting and curative influence over the lesions of syphilis.

In a former paper on this subject (*Therapeutic Gazette*, November, 1889) I dwelt on the history of this method of medication, and gave also a synopsis of the literature on the subject. I shall therefore in this paper consider principally my experience with this treatment and with the various agents so employed. During my student days I had the opportunity of watching and practicing this method, and I have continued to employ it to this day in a large and varied practice which has brought, perhaps, to me an unusual number of cases of early and secondary syphilis. Though I have again and again abandoned it, owing to the pain it occasioned, I have always had to revert to it in order to satisfy my patients, who, if they had been treated hypodermically once, and were then treated with mercurials taken by the mouth, would gladly stand the pain of the injections rather than the slow results and the digestive derangement caused by the older methods of medication.

I usually begin the injections of corrosive sublimate in the interscapular region on one side and about two inches from the posterior vertebral processes, and continue down the back in the costal interspaces—the injections being about an inch or an

inch and a half apart. The effect of the injections on still open primary sores, on indurated glands, on macular syphilides, and on pharyngeal ulcerations may be said to be almost magical. It is noticeable that within a few days, and usually within a week or ten days, all these signs have disappeared. The same beneficial results may also be said to take place in specific iritis and chorioiditis, and it is especially in these two affections that I consider the hypodermic administration of corrosive sublimate, in the doses and manner mentioned, of the greatest value. Papular eruptions do not show the same tendency to disappear rapidly under the hypodermic treatment, but have usually faded within a few weeks. The effect on luetic fever and nocturnal pains is so marked that with the first or second injection the patient notices a marked improvement. I never use less than a one-fourth-grain injection at one time and generally employ a one-per-cent. solution in distilled water, filling a syringe of twenty-five minims' capacity. These injections are continued daily, and during the first week or two patients stand the treatment fairly well. There is rarely, during this period, any evidence of soreness of the mouth or gums, nor is there any intentional trouble noticeable. After the entire back, on both sides, has been gone over with injections, many of which have left quite sensitive indurations, their repetition in or near the old places proves quite painful, and it is only then that real complaints from patients are heard. Usually after eighteen or twenty injections tumefaction of the gums becomes marked, and gingivitis is often noticed. The daily injections are then intermitted, and are made at intervals of two, three, or four days, the untoward symptoms rapidly disappearing during such intervals. The total number of injections usually made in any one treatment is about twenty-five, but I have continued them to the number of thirty or thirty-five, when marked pigmentation of the local lesions supervened. A good rule may be to carry on supermedication for about two weeks after the total disappearance of all symptoms. It is, of course, understood that during this time the patient is to be supported by a liberal diet, by milk punches, and, when the digestion is impaired, by tonics and quinine. The mouth should be kept scrupulously clean, the teeth being cleansed after each meal and at bedtime with a soft brush dipped in a solution of one drachm of potassium chlorate to six ounces of water, and containing also a drop of carbolic acid to each fluidounce. While warm full baths or steam and hot-air baths are adjuvants to the treatment, the cold bath should be interdicted, as well as exposure to cold and deprivations. I may safely say that I have made thousands of these injections, and have yet to record a case where they have been followed by abscess or sloughing. All of my patients so treated were ambulant, and I do not remember that any of them have lost a day from their usual vocations.

The immediate effects of the injections of corrosive sublimate have been so uniformly good that I need to consider now only the remote effects on the progress of the disease and its liability to relapses. The permanency of a remedy in syphilis is one of the features of the greatest importance, and here I must say that, rapid as is the beneficial effect of this method of medication, there is a corresponding large number of relapses. Of the cases that I have so treated, and of which I have been able to keep a record, I can safely state that in about sixty per cent. no further symptoms developed. I have notes on a number of patients so treated who subsequently married and raised apparently healthy offspring. Of the remaining forty per cent., however, I can not say that they have done so well, and many of them, after receiving two, three, and even four courses of treatment by injections, had to submit to treatment by systematic inunction before the tendency to relapse was overcome.

It is this tendency to relapses which has caused me to abandon hypodermic injections after a second failure as to permanency of cure. It made me investigate the many other mercurials suitable for hypodermic medication. It has been experimentally proved by Vajda, of Vienna (*Ueber den Einfluss des Quecksilbers auf den syphilitischen Process*), that the iodides inhibit the elimination of mercury by the kidneys, and that the slower the elimination the greater the safety from relapses. For this reason it has been my practice to give five to ten grains of potassium iodide three times daily, after the injection treatment, for months; but even this plan has not always prevented frequent relapses. Acting on this indication, and at the suggestion of my friend Dr. Thomas H. Fenton, I have tried injections of iodo-hydrargyrate of potassium, a compound of iodine and mercury, but I have found these injections no less painful, and their permanency of effect has not been greater in my hands than with the corrosive-sublimate treatment. In respect to permanency, it is said that injections of the insoluble mercurials are of greater benefit than those of the soluble ones. This might be inferred from the fact that their conversion into a soluble compound beneath the skin is a slower process, and while thus a mild continued mercurialization is produced, the injections need not be repeated so often. The insoluble mercurials have, however, the disadvantage of not being always aseptic or of being readily rendered so. It is true that with the introduction of vaseline oil as a vehicle for their hypodermic administration they can be rendered both less septic and less painful.

At the head of the insoluble preparations, so far as efficiency is concerned, calomel must figure. I give below the formula for its use, as well as the formulæ for other of the insoluble mercurials, according to Professor Edward Lang in his *Ordinations-Formeln*:

B	Calomel,	
	Vaseline oil,	..... 4-5 grammes.
	Lanolin	..... 4 "

Each c. c. contains 0.371 gramme of mercury, 0.1 c. c. to be injected not oftener than two or three times the first week.

The precipitated mercuric oxide (hydrarg. oxid. flav.) comes next:

B	Yellow oxide of mercury	..... 4 grammes.
	Vaseline oil	..... 4-5 "
	Lanolin	..... 3-5 "

Each c. c. contains 0.391 gramme of mercury. To be used like the calomel injection.

The salicylate of mercury is lauded very highly, and is prepared for injection as follows:

B	Salicylate of mercury	..... 7 grammes.
	Vaseline oil	..... 4 "
	Lanolin	..... 2 "

Each c. c. contains 0.391 gramme of mercury.

The latest preparation, and at the present time the one generally employed in the hospitals of Paris, even by the veteran Fournier, is the mercurous oxide, which is really a mercurous-mercuric oxide, but better known as the black oxide of mercury. It is used as in the following formula:

B	Black oxide of mercury	..... 4-7 grammes.
	Vaseline oil	..... 6-2 "
	Lanolin	..... 3-1 "

Each c. c. containing 0.39 gramme of mercury, and the mixture is to be used like the other preparations.

I might go on and mention in the same manner the thymol-acetate, the diphenylate, and the soziodiodate of mercury and other forms of the drug, but, as those named are the preparations generally used, I will omit the others.

It will appear from the foregoing that, after all, the virtues of the preparations quoted consist in the amount of mercury they contain and in the slowness of its conversion beneath the skin. The more rapidly it is converted, the sooner the lesions disappear; the more mercury is introduced with safety to the general health, the greater the curative effect on syphilis; but the slower and more persistent the conversion, the greater the permanency of the remedial action and the likelihood of a total extinction of the syphilitic poison. It may be said against these insoluble mercurials, and with some force, that their advantage over the soluble preparations is only by their slower action, while the marked local reaction which they produce is quite as great as with the soluble mercurials. Such is really the case, and the desideratum, therefore, seems to be to employ a preparation that will produce the least reaction and that will be slowly converted, while least in its tendency to produce untoward effects. Professor Edward Lang, of Vienna, some years ago experimented on the direct introduction of metallic mercury in minute subdivision as being nearest to the ideal method of inoculations, which yet hold the highest place in permanency in the treatment of syphilis. He found that they were readily borne, that they produced little or no local reaction, and, on account of the slow conversion of the mercury, that they needed repetition only at long intervals. He maintained that the introduction of the metallic mercury hypodermically exercised an influence over the syphilitic process which was in direct proportion to its conversion, which could be studied by its excretion through the kidneys. This appealed to me as one of the methods most likely to prove more permanently efficacious than any of the others, and I introduced it into my private practice as well as into the wards of the German Hospital under my control.

To fully describe this method I must mention the manner of the preparation for hypodermic use, as given by Professor Lang in his *Ordinations-Formeln*. This consists in first making an ointment of mercury with lanolin as follows:

Anhydric lanolin, fifteen grammes; dissolve in a sufficient quantity of chloroform, fifty grammes, and evaporate the chloroform by continued stirring until the weight is thirty grammes; then add pure metallic mercury, thirty grammes, and continue stirring until all the chloroform is evaporated and the mercury is perfectly extinguished. This can be recognized if, by spreading with a spatula on paper, no mercury globules are visible by means of a magnifying glass.

This is his strong lanolin mercurial ointment, and it forms the basis for his oleum cinereum, or gray oil. Of the latter he has two preparations, according to the dilutions, the fifty-per-cent. and the thirty-per-cent. oil. The formula for the former is as follows:

B	Strong lanolin mercurial ointment	..... 9 grammes.
	Olive, almond, or vaseline oil	..... 3 "

Mix well.

Five one-hundredths of a cubic centimetre is the average dose for injections, but if it is desirable to inject double the quantity it is best done in two different places. To produce a very active effect it is advisable to inject twice a week 0.05 c. c. of this strong oil until all symptoms have disappeared. After that, and to prevent relapses, 0.05 c. c. should be injected about once a week or once in two weeks for some time afterward. All injections should be made beneath the skin, in the back, about an inch from the median line, the semisolid mixture being previously warmed by immersion in hot water until it becomes fluid. Lang also makes use of injections of 0.05 c. c., two to four times during the first week, and subsequently every week, and later every two weeks, the same amount. He also recommends a milder gray oil, made as follows from the strong lanolin mercurial ointment:



℞ Strong lanolin mercurial ointment. . . 4.5 grammes.

Oil of sweet almonds (or olive or  
vaseline oil) . . . . . 5.5 " M.

Each cubic centimetre of this contains 0.366 gramme of mercury. This is termed the thirty-per-cent. gray oil. Of this oil one tenth cubic centimetre is the average injection made in two places on the back.

These formulae, complicated as they may seem, can easily be worked out, and when once the lanolin mercurial ointment is made the dilution takes very little time, as but small quantities are required; half an ounce will last for weeks, and, if necessary, should be made fresh every month or two, although these oils really keep for a much longer period.

The syringe for injections should be accurately gauged and subdivided into 0.1 c. c. and tenth parts thereof. The syringes as made by Reiner, also Leiter, of Vienna, are used for that purpose, the total capacity of each being half a cubic centimetre. They have been accurately gauged, and a certificate of accuracy accompanies each. While it might be well to disinfect the needles and syringe before using, by syringing them with a four-per-cent. carbolic acid water, I have found that there is but little danger in private practice even if this precaution is not observed. The gluteal regions are said not to be very suitable for these injections.

In the use of the gray oil it has been my practice to inject 0.1 c. c. every week for the first four to six weeks. Usually macular eruptions fade after the second or third injection, papular ones after the fourth or fifth. Examination of the urine showed the presence of mercury within the first week, and its presence was noted for a month and more after all injections had been stopped. The injections of smaller quantities (0.1 c. c. of the thirty-per-cent. oil) in different parts of the back are of greater advantage than the injection of double the amount in one place, the urine showing the mercury sooner in the first case than in the second. The only precaution to be observed in the employment of the gray oil is not to use too much. It is a frequent temptation when the curative process is slow to increase the amount injected or to repeat it oftener. This is to be avoided, as the mercury is only slowly converted and accumulates to the point, when it manifests its potency over the syphilitic process. Another precaution to be observed is to pay careful attention to the teeth and mouth. As the development of absorbable mercurial compounds is progressive, the injections should be discontinued or made smaller even upon the slightest effect noticed on the gums. This medication is a most effective and potent one, and I can readily see how, by a lack of precaution, severe salivation might ensue. Let no one suppose that, as there is little reaction immediately upon the injection, it might be pushed without hesitation. Literature records several cases where an uncalled-for free use of this remedy has caused not only bad but also fatal results. In my experience such has not been the case, although I have employed it with uniformly happy results in a large number of cases.

To sum up the indications for the hypodermic medication of syphilis, I should say that in cases where the symptoms required urgency of treatment I would employ the injection of a quarter of a grain of corrosive sublimate, at first daily and subsequently every other day, until about twenty-five injections had been given. If, after this, all the symptoms had not entirely subsided (as shown by entire absence of all pigmentation) I should resort to injections of the thirty-per-cent. gray oil, 0.1 c. c. in one or two places in the back once a week, until six to eight injections have been made. If, after a shorter or longer period without medication, further manifestations of syphilis should appear, the same series of injections with gray

oil should be made and thus continued until, after long lapses between treatment, no further return of the lesions appeared. The injections of corrosive sublimate, as described, have the advantage of more rapid action, and will often suffice. I should always recommend their use at first as preferable to others, but when relapses occur the injections of gray oil are less painful and promise greater immunity from subsequent relapses.

Dr. J. WILLIAM WHITE said there were some points in the paper that had attracted his attention, although he would mention them chiefly to disagree. The reader had stated in one of the opening paragraphs of his paper that in the principal medical centers of Europe little or no mercury was given by the mouth, the inference being that in this respect we were behind the times. As a matter of fact, if we looked over the present treatment of syphilis in the hands of the most distinguished men of the profession who had made syphilis a specialty, we should see that the reverse of this statement was true, and that comparatively little mercury was given hypodermically. In Germany some of the best men had pronounced against it as the method of choice, although there it prevailed to a great extent. In France, even the veteran Fournier had pronounced against the routine use of the hypodermic method. In Great Britain, Jonathan Hutchinson found no reason in his experience for the use of this method. In this country, Taylor and Keyes, of New York, Bryson, of St. Louis, and specialists in all parts of the country were reserving the employment of this method for rare cases. The speaker would therefore take issue with the statement that in the principal medical centers of Europe this was the method of choice.

Another point that had attracted his attention was the extraordinary quality that the author's patients seemed to possess of preferring this method of treatment. This was absolutely the reverse of the experience of everybody else who had put himself on record. Fournier had called attention to the fact that while one might cause a rapid disappearance of the disease, one also caused a rapid disappearance of the patient. Every French syphilographer who had recently written had emphasized this point, with the exception of two or three enthusiasts who were still carrying on experiments in this direction.

The remarks in regard to the effect of the treatment on open sores would seem to indicate that Dr. Wolff began the treatment very early. If the rule not to begin treatment until constitutional symptoms were manifested was adopted, it might change his percentages. His statistics were open to the imputation that the cases were not all cases of syphilis, on account of the fact that there was a considerable proportion of "sores" which it was impossible to diagnosticate unless constitutional symptoms were waited for.

Dr. Wolff gave twenty-five to thirty injections, and then stopped the treatment. That seemed the most defective feature in the method. It had been alleged that the disease was cured by thirty-five injections, each of a quarter of a grain of corrosive sublimate, the treatment lasting a little over a month, a little less than nine grains of mercury being given. If this was true, we had to suppose that there was some virtue about mercury given in this way which it did not possess when administered in other ways. The evidence was steadily accumulating that it did not produce permanent cures and that it was attended by a larger number of relapses than other methods, and the contention that thirty or forty injections of a soluble preparation of mercury or five or six of an insoluble preparation would produce a cure of syphilis was without foundation. Dr. Wolff had spoken of the liability to relapse, and the speaker could readily understand this if he stopped at the end of thirty-five injections. If he had had only forty per cent. of relapses he had been fortunate.

As to the insoluble preparations, calomel, which Dr. Wolff had placed first, was first in order of time, as it had been introduced in 1864, and revived seven to ten years ago by Smirnoff, a Russian physician, and had, until a few years ago, kept its place. It had, however, been supplanted by the yellow oxide, which was now used more than any other insoluble preparation. The objection to this plan was that it was only another way of giving a soluble salt. The insoluble salt was slowly converted into a soluble form, and, so far as the speaker understood the matter, this became one of the most inaccurate methods of giving mercury. One of the claims put forward for this method was that it insured scientific accuracy. Anything more unscientific, as regarded precision of dose, than to throw under the skin an emulsion of metallic mercury in lanolin or a quantity of calomel or yellow oxide, and allow it to remain there, subject to the vicissitudes of different degrees of inflammatory action attended with different degrees of absorption, would be hard to imagine.

As to the freedom from harmful consequences, as a matter of fact there were in some patients, as a direct result of this treatment, a violent stomatitis, dangerous salivation, enterocolitis with bloody stools, and, where vaseline or fatty preparations were used, pulmonary embolism. There were on record fatal cases from these sources. Occasionally the metallic mercury remained under the skin inert for a time, and then suddenly became absorbed in large quantities, with the development of violent symptoms.

These objections were founded upon the observations of men who were advocates of the method, who had had the frankness to record their unfavorable cases, and who could not be disputed. Autopsies in cases where the insoluble salts had been administered experimentally in other diseases showed that there was great variability in the rapidity of absorption.

The pain was severe and belonged to the use of every mercurial salt administered in this way. Lang's statement in regard to the absence of pain and other symptoms after the administration of the gray oil was contradicted by other observers. In the best hands there had been a certain percentage of abscesses, and, although the introduction of antiseptic methods had reduced their number, they were occasionally inevitable. Far more frequent were painful nodosities about the seat of the injection.

The conditions under which the method should be employed were extremely limited. The speaker believed that it should be held in reserve for cases where other methods had failed. Given a patient whose gastro-intestinal tract reacted to mercury in such a way that the various preparations became irritants, and in whom the use of injections produced a violent dermatitis or mercurial erythema, such a case would suggest a trial of the hypodermic method. In grave emergencies, such as the serious eye troubles of the secondary stage, it might even be regarded upon an equal basis with injections. There was no evidence to show that it was of greater value. If one wanted to produce rapid mercurialization, the administration of small doses of the protiodide, calomel, or mercury and chalk, supplemented by the simultaneous inunction of mercurial ointment, would almost equal in rapidity of action the use of the soluble salts of mercury. Probably every one would admit that in the presence of threatened grave complications the hypodermic method might be suggested. In old syphilis mercury did not take the place of iodide of potassium. If there was a gummatous meningitis, or an infiltrating gummata of the brain, or a periostitis in the late stages of syphilis, or if there were any of the tertiary phenomena, while mercury hypodermically might be useful, it should be regarded only as a valuable adjuvant, but secondary to the use of the iodide of potassium.

Dr. RICHARD A. CLEMAN had used the hypodermic method, and thought that Dr. White was a little severe. He had had several patients who preferred it very much to mercury by the mouth. He had used more than thirty-five consecutive injections, and had given as much as a third of a grain at a time, giving two injections of a sixth of a grain each. He had never seen abscess, but he had seen the painful nodosities, and once had had to stop because the parts were so painful that the patient was not willing to continue the treatment. After the nodosities disappeared he came back and the treatment was resumed.

He had found, contrary to what had been said in the books, that a small quantity of corrosive sublimate would not remove the symptoms, particularly in cases of tuberculous skin disease in the form complicated with ulceration. One had to use many injections before any effect on the ulceration was produced. Finally, the ulcerations disappeared as a rule. The great advantage of the use of injections was that it overcame the great tediousness of the ordinary treatment and the liability of the production of digestive disturbances. In a case he had in mind a man was in splendid general health while the hypodermic method was used, but when mercury was used by the mouth he suffered from diarrhoea and troubles with the stomach.

He had not used injections in the primary stage of syphilis, but in one case he had used them immediately on the appearance of the secondary symptoms. After the use of twelve injections the symptoms disappeared, but they reappeared in the course of a month in a rather unusual form—that of thickening of the nails. He was now using injections in this case. The general health was excellent, although the patient had been much run down before. The pain, while it was sometimes severe, was not unbearable.

Dr. J. A. CANTRELL thought that the hypodermic treatment of syphilis would cure in most of the cases. He had seen forty or fifty cases where the treatment had been continued up to thirty or thirty-five injections, and where the patients had not come back for the treatment of the disease. He had seen one of these cases seven years after the treatment, and there had been no return of the disease. He had, however, seen cases where the injections had been continued until as many as sixty or even a hundred and twenty had been given without benefit. Fournier had, he believed, within a month injected for macular syphiloderm. Sometimes the injections were not absorbed for a week or ten days, and often left decided ulceration. In the cases in which he had seen the method employed he thought that it would have been better to use internal treatment, and if the cases did not do well the hypodermic method might have been tried.

Dr. EDWIN ROSENTHAL had used hypodermic injections of corrosive sublimate quite a number of times. He thought that Dr. White had been too severe in his denunciation of this method of treating syphilis. Practical experience had demonstrated its utility and the many advantages it had over other methods. The inunction method, for instance, was the dirtiest that could be employed, and would drive away more patients than the hypodermic method would. One of the points in favor of the latter method was that the patient had nothing to do with the treatment, but ate and drank while undergoing a cure. The injections were cleanly and devoid of all risk when judiciously made; at first they were made daily, and afterward every second or third day.

He had given the injections in the primary disease, in a case of chancre of the tongue, in which the lymphatic glands in the cervical region were very much enlarged, and where the internal administration of remedies could not be borne by the pa-

tient and prompt treatment was indicated, with very good results. This patient was still under treatment, but there had been no appearance of an eruption.

Speaking of the large dose given at a single injection and its good results, he wished to record another point, and that was: In infantile syphilis the dose of  $\frac{1}{100}$  or  $\frac{1}{200}$  grain of corrosive sublimate, as recommended by Dr. Jacobi (*Journal of Pediatrics*), was too small. He had seen a vast number of cases of infantile syphilis, and had lost quite a number of patients until he had increased the dose; and he now never began with less than  $\frac{1}{8}$  grain of corrosive sublimate, and gradually increased the dose.

Dr. CHARLES WIRGMAN thought that a point to be borne in mind, both in private and in hospital practice, was that as soon as the lesions disappeared the patient ceased to return for treatment. No matter how eloquent one might be in regard to the necessity of continuing treatment, they disappeared. If it could be demonstrated by a more extensive use of this method that thirty-five, seventy-five, or even one hundred and seventy-five injections would take the place of two or three years' treatment, that would be a great boon to humanity, and the question was worthy of serious consideration and further trial.

Dr. S. SOLIS-COHEN thought the discussion pointed to the fact that it would be well to elicit further testimony as to the time when a syphilitic patient could be considered "cured." His own experience had been so largely with late lesions, occurring in patients who had been treated by many different methods, and in whose cases quite a number of years had elapsed since the primary infection, that he was compelled to consider it at least premature, because symptoms might have disappeared for a time, to say that the treatment had cured the disease. The patient must, it seemed to him, be kept under observation for a prolonged period before we could record even a probable cure or recovery; and this was the fatal defect of all methods which limited themselves to a comparatively brief period during the time of early symptoms. His personal use of hypodermic injections of mercury in syphilis had been limited to the employment of corrosive sublimate for rapid effect in early or late cases, so that he was unable to discuss the other methods, except from a theoretical standpoint; and therein he was entirely in accord with Dr. White. In the extreme cases of late lesions he sometimes met with he resorted preferably to inunction, associated with or followed quickly by the internal use of potassium iodide in ascending doses; and, acting upon a suggestion of Bartholow's, he sometimes conjoined with this the steam bath and the hypodermic use of pilocarpine to hasten elimination. It was dangerous to push the action of tissue destructives unless we provided for rapid elimination. Hence the advantage, too, of giving large draughts of water or milk with potassium iodide.

Dr. JOSEPH HEARN had used the hypodermic method in only one case, where the stomach was irritable. Under treatment with eighth-of-a-grain doses the patient had improved. He thought it a method which should be held in reserve. There were patients who could not bear the iodides. He had been taught that the iodides did not cure syphilis, but rather its consequences. Only mercury cured syphilis. If he was in a hurry he used inunctions, but if there was no urgency he used internal treatment. He could not say how many of his cases were cured. He believed that the disease could be put in abeyance so that the patient would live for any length of time.

He would like to ask if the administration of mercury during the primary stage would mask the secondary symptoms so that one could not recognize them.

Dr. JAMES MITCHELL thought there were cases of syphilis where the disease appeared to have taken a mild form,

He had used all forms of treatment with the exception of the hypodermic. His experience of late years had been principally with the secondary and tertiary affections, particularly of the eye. He found that sometimes the patients denied anything like infection. When we came to a study of the treatment of any disease, we must take into consideration the fact that all diseases varied in their intensity in different individuals. This was the reason that we had different results with the same treatment, and why one method of treatment would fail while another would effect a cure.

Dr. JOHN B. DEEVER's experience with the hypodermic administration of mercury had been comparatively limited. He had not used it sufficiently to say much in its favor. Of course, one of the objections was the decided pain which it caused. Painful indurations had been marked in some cases and had been some time in disappearing. He had, however, seen most excellent results obtained in ulcerative conditions of the pharynx and soft palate, where the internal administration of mercury did not suffice, largely, perhaps, because it excited irritation of the digestive tract, and where inunction had also failed.

One of the weakest arguments against the use of injections was that a cure was produced in so short a time. He believed that many of the cases of early relapse were due to the fact that the physician had been led to believe that he had cured the case. From his observation he thought that treatment should be prolonged for four years, or at least three years. He had had sufficient satisfaction with the ordinary treatment not to resort to the hypodermic method, except in special cases.

Dr. WHITE, in reply to the question of Dr. Hearn, would say that he believed that the prompt administration of mercury in primary syphilis would prevent the appearance of the secondary symptoms.

He knew of no test that could be applied to the individual which would demonstrate the presence or absence of active syphilis. He believed that ninety to ninety-five per cent. of the cases could be cured, but it was impossible to say at the beginning which of the cases would not be cured. As a matter of fact, syphilis was inclined to be a self-limited disease. Nothing but the experience of years would demonstrate the possible cure. The point had already been made in regard to relapses, and he thought that figures were accumulating that were distinctly against the method, and would show that the proportion of relapses with the hypodermic method was greater than under the classical methods which we had been using.

Dr. DRAKE had recently returned from Europe. For six months he had been Kaposi's assistant. In most of his cases he used the hypodermic method, the injection being made in the gluteal region once a week. Neumann, of Vienna, used salicylate of mercury hypodermically. He also used internal treatment in some cases. Lang, of Vienna, was at the present time experimenting with the gray oil. Lukasiewicz also used injections of a five-per-cent. corrosive-sublimate solution, a gramme every week.

In Berlin, the dermatologists and syphilographers, Joseph and Lassar, used hypodermic injections in most of their cases. In some they used inunction.

In Paris, Fournier was using hypodermic injections at the time that he had left. In some cases there, after the first injection, the eruption had entirely disappeared. Of course, it was a little painful, but it did not occasion the patients much trouble, and they gladly submitted to the treatment, and preferred the hypodermic injections.

Dr. WOLFF repeated that he had made thousands of injections, and the patients with whom he had exchanged the hypodermic method for the administration of protiodide by the



month, had asked to have the former method resumed. They did not seem to mind the pain very much.

In regard to the administration of the remedy before the diagnosis was established, he would state that the injections were not made until the macular eruptions and other characteristic symptoms had manifested themselves. He never treated constitutionally for the primary sore alone.

As to the results, he had stated that he had found no return of the symptoms in sixty per cent. of the cases. He did not know whether or not these gentlemen could tell syphilis when there were no symptoms. Syphilis was only present, in his opinion, when there were symptoms. The duration of the treatment had been, on an average, for twenty-five injections, and he was not the only one who had made that statement. Many thousands of cases had been treated at the Charité in Berlin.

Kaposi had led the discussion on the therapeutics for syphilis at the Congress für innere Medizin in Wiesbaden in 1887, and it was generally accepted for the principal methods of treatment and the relative permanency of their results, as followed: the inunction method, most permanent; the calomel-injection treatment next, and the hypodermic injection of corrosive sublimate, as third. It was stated elsewhere that the permanent results of the first were seventy-five per cent.; the second, seventy per cent.; the latter, sixty-five per cent. The speaker's results had not been so good, although he had injected larger doses and for a longer time.

In regard to the time of cure. This might be said to be obtained when there was no return of symptoms. There was no such thing as saying that syphilis would be extinct after two or after four years. He had seen it return after twenty years, in spite of treatment. There was extinction only when there was no return of symptoms. To limit it to any one time was almost out of the question, because the time of cure for syphilis could not be predicted.

He had given his paper as the result of personal experience. If mistakes had been made, they had been the result of misinterpretation and lack of a sufficient number of cases, rather than of a want of truthful statement.

## Book Notices.

*A Manual of Bacteriology.* By GEORGE M. STERNBERG, M.D., Deputy Surgeon-General, U. S. Army, etc. New York: William Wood & Co., 1893.

The subject of bacteriology has made such rapid progress in the last four years, and its literature is so voluminous and, in many instances, so vague, that it has been almost impossible for one not wholly devoting his time to it to keep himself informed with regard to what was positively known and what was only surmised. The object of the author in the present work has been to go over the whole ground and arrange our present knowledge in a form suitable for the use of students. No commendation is too high for the manner in which he has accomplished his task. So far as we can find, not a single one of the various forms of bacteria known to science has failed to receive his attention. To review his book, therefore, would be to review the whole subject of bacteriology. The important pathogenic bacteria and the technology of the subject are described in large type, thus separating them from the unimportant and non-pathogenic varieties, which are described in smaller type. This arrangement will save the student much unnecessary reading, and will at the same time suggest to him fields for study which have not been thoroughly explored.

The plates and illustrations are largely borrowed from the original memoirs in which the particular varieties were described, and the artistic part of the work has been most creditably performed. The book is the most complete treatise yet published upon this subject, and one which the student of bacteriology can ill afford to be without.

*The Principles of Bacteriology.* A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. With Illustrations. Philadelphia: Lea Brothers & Co., 1892. Pp. 263.

THE author, keeping before him constantly the object of his book, the needs of the student and practitioner of medicine, who, being otherwise engaged, can devote but a portion of their time to bacteriological research, has restricted himself to a clear exposition of such fundamental features as are essential to the understanding of the subject. His historical data are derived from Löffler's *Vorlesungen über die geschichtliche Entwicklung der Lehre von den Bakterien*, and are presented in a sufficiently detailed manner for his present purpose. The author's constant effort is to develop independent thought in the student, and experiments are constantly suggested with a view of diminishing the frequency of the oft-heard query "What shall I do next?" There is no attempt at a display of erudition, and yet our author's discriminating use of his material, his clear exposition, his very simplicity, show his control of his subject and merit our highest praise.

What bacteria are, how they grow, how classified, how isolated, how intensified, how cultivated, are all questions answered in their due order.

The treatise closes with a detailed examination of the various pathological excreta from the human subject, affected by the usual diseases, bringing him the most frequently under the physician's care, and of the induced pathological, macroscopical and microscopical, variations succeeding inoculation experiments.

*The Year Book of Treatment for 1893.* A Critical Review for Practitioners of Medicine and Surgery. By Various Contributors. Philadelphia: Lea Brothers & Co., 1893.

This publication is so well known, and during the past eight years has established for itself so high a reputation for accuracy and value, that extended criticism is scarcely called for. The surest proof that this value exists is the favorable reception which has been and still continues to be given to it by the profession at large. Certain changes, including the addition of a separate article on Public Health and Hygiene, have been made in this year's edition, all of which add yet more to its value. The arrangement of the volume and its indexing are, as usual, excellent.

*The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners.* By Various Authors. 1893. Eleventh Year. Bristol: John Wright & Co. New York: E. B. Treat. Pp. ix-590.

In presenting the volume for 1893 (eleventh year) the publishers, in their preface, make the following statement: "The design we keep before us is to bring the practitioner into direct communication with those who are advancing the science of medicine in any particular direction, so that practical information, the result of personal experience, may have a larger share in the composition of the work than would be the case if we contented ourselves with a simple collection of abstracts from the various medical journals." It would be difficult, we think,

if not impossible, to more perfectly attain a given object than has been done in this year's annual; and certainly such a great amount of valuable matter could scarcely be better sifted, condensed, and arranged for quick and easy reference.

While the list of contributors guarantees the general excellence of the volume, we regard the portions of the book dealing with therapeutics, digestion, and the heart as of special interest and value.

On cholera, a subject which perhaps more than any other at present demands our attention, there are six contributions of the greatest interest and value, and we can not too heartily indorse the wise policy of the publishers, which has given us the opinions of several men of eminence on this most important matter and saved us from the necessarily prejudiced opinion of a single writer.

The arrangement, the paragraphing, and the indexing of the book are excellent, but it is much to be regretted that so much space should have been devoted to advertisements.

#### BOOKS, ETC., RECEIVED.

A Text-book of the Theory and Practice of Medicine. By American Teachers. Edited by William Pepper, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In Two Volumes. Illustrated. Vol. I. Philadelphia: W. B. Saunders, 1893. Pp. xii-909.

A Manual of Operative Veterinary Surgery. By A. Liautard, M.D., V.M., Principal and Professor of Anatomy, Surgery, Sanitary Medicine, and Jurisprudence in the American Veterinary College, etc. With nearly 600 Illustrations. New York: Sabiston & Murray, 1893. Pp. xvi-786.

Handbook of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Nasopharynx. By Carl Seiler, M.D., Instructor in Laryngology and Lecturer on Diseases of the Upper Air Passages in the University of Pennsylvania, etc. Fourth Edition, thoroughly revised and greatly enlarged. Illustrated with Two Lithographic Plates containing Ten Figures and One Hundred and Seven Wood Engravings. Philadelphia: Lea Brothers & Co., 1893. Pp. xi-13 to 411.

The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. By Various Authors. 1893. Eleventh Year. Bristol: John Wright & Co.; New York: E. B. Treat. Pp. lx-590.

The Disease of Inebriety from Alcohol, Opium, and other Narcotic Drugs; its Etiology, Pathology, Treatment, and Medical-legal Relations. Arranged and compiled by the American Association for the Study and Cure of Inebriety. New York: E. B. Treat, 1893. Pp. xiv-17 to 400. [Price, \$2.75.]

Report of a Case of Right-angled Deformity of the Knee, resulting from Tubercular Arthritis. By James F. E. Colgan, M.D., Philadelphia. [Reprinted from the *Therapeutic Gazette*.]

Hydrotherapy in the Treatment of Nervous and Mental Diseases. By Frederick Peterson, M.D. [Reprinted from the *American Journal of the Medical Sciences*.]

Traumatic Synovitis of Knee Joint with Hæmorrhage into Joint Cavity; Four Ounces of Blood encapsuled Sixteen Months. By F. C. Schaefer, M.D., Chicago. [Reprinted from the *Chicago Clinical Review*.]

Brain Surgery. Injury received Five Years ago followed Three Years later by Convulsions and Paralysis. Blood Clot found under the Dura Mater and removed. Patient improving. By F. C. Schaefer, M.D. [Reprinted from the *Chicago Clinical Review*.]

Bloodless Amputation at the Hip Joint by a New Method. By Nicholas Senn, M.D. [Reprinted from the *Chicago Clinical Review*.]

Gastric Ulcer in a Child Two and a Half Years Old. By James F. E. Colgan, M.D. [Reprinted from the *Medical News*.]

Skin Fracturing upon the Cranium. By F. C. Schaefer, M.D. [Reprinted from the *Chicago Medical Recorder*.]

Notes on some Interesting Cases at the New York Mothers' Home Maternity Hospital. By T. J. McGillicuddy, M.D. [Reprinted from the *Journal of the American Medical Association*.]

A Consideration of the Knee-jerk Symptom. By R. M. Phelps, M.D., Rochester, Minn. [Reprinted from the *North-western Lunatic*.]

Trional and Tetronal. Clinical Observations on their Action as Hypnotics and Sedatives for the Insane. By W. Mabon, M.D., Utica, N. Y. [Reprinted from the *American Journal of Insanity*.]

A Case of Hæmorrhagic Iritis, with Remarks. By Dr. Charles Zimmermann, of Milwaukee, Wis. [Reprinted from the *Archives of Ophthalmology*.]

A Topical Treatment of Bronchitis. By Edwin J. Kuh, M.D. [Reprinted from the *Chicago Medical Recorder*.]

Fourth Biennial Report of the North Carolina Board of Health, 1891-1892.

Human Anatomy. A Complete Systematic Treatise by Various Authors, including a Special Section on Surgical and Topographical Anatomy. Edited by Henry Morris, M.A. and M.B. Lond., Surgeon to and Lecturer on Surgery, formerly Lecturer on Anatomy at the Middlesex Hospital, etc. Illustrated by 791 Woodcuts, 214 of which are printed in Colors from Drawings made expressly for this Work by Special Artists. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xxxiii-17 to 1286. [Price, \$7.50.]

Diseases of the Skin. A Manual for Students and Practitioners. By Charles C. Ransom, M.D., Assistant Dermatologist, Vanderbilt Clinic, New York. Series edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York. Philadelphia: Lea Brothers & Co., 1893. Pp. 6-17 to 201. [The *Students' Quiz Series*.]

New York State Reformatory at Elmira. Seventeenth Year Book, containing the Annual Report of the Board of Managers. For the year ending September 30, 1892.

Fixation after Excision of the Knee. By H. Augustus Wilson, M.D., Philadelphia. [Reprinted from the *American Journal of the Medical Sciences*.]

Congenital Induration or Tumor of the Sterno-Mastoid. By Justin Herold, M.D., New York. [Reprinted from the *International Medical Magazine*.]

The Prevention of Hernia after Incision of the Abdominal Walls. By George M. Edebohl, M.D. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

A New Method of Artificial Respiration in Asphyxia of the New-born, with Cases. By W. E. Forest, M.D., New York. [Reprinted from the *Medical Record*.]

Some of the Effects of "Withdrawal." By L. Bolton Bangs, M.D., New York. [Reprinted from the *Southern Clinic*.]

Blood in the Urine. How to discover its Source and what to do for it. By L. Bolton Bangs, M.D., New York. [Reprinted from the *Medical Record*.]

Care and Treatment of the Nipple in the Gravid and Puerperal States. By S. Marx, M.D., New York. [Reprinted from the *Medical Record*.]

Hypnotism as a Therapeutic Agent. By William Lee Howard, M.D., of Baltimore, Md.

Tumor of the Cortex producing Hemiplegia, with Loss of Tactile, Pain, and Muscular Sense. By Frank S. Madden, M.D., Plattsburgh, N. Y. [Reprinted from the *Journal of Nervous and Mental Disease*.]

Nuevo Concepto de la Histología de los Centros Nerviosos. Por el Dr. D. Santiago Ramón y Cajal. [Publicadas en la *Revista de Ciencias Médicas de Barcelona*.

Choléra et fièvre typhoïde. Par M. L. Galliard. [Extrait des *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*.]

## New Inventions, etc.

### A SHIELD TO PROTECT THE CLINICAL THERMOMETER.

By HERBERT U. WILLIAMS, M.D.  
BUFFALO, N. Y.

THIS device is intended to protect the thermometer while it is being held in the mouth so that it may not be bitten. It consists of a tube of German silver, an inch and a sixteenth (twenty-seven millimetres) in length, having a narrow opening in front. It should clasp the thermometer with moderate pressure, and should slip off easily. It may be made to fit thermometers of various calibers within narrow limits. However, the tubes of thermometers vary so much that it has been found necessary to make the instrument in three sizes. The metal is of such thinness that the shield will go into the case with the thermometer. When not in use it may be put on the end opposite the bulb, where it is out of the way. When it is to be



used, the shield should be placed over the lower end of the stem of the thermometer, a quarter to half an inch above the bulb. The working of the thermometer is not interfered with, while the metal prevents the glass beneath from being bitten. It may be removed to be cleaned or boiled.

It may be applied to the lens-front thermometer by broadening the opening in the shield so that the blades embrace the lens. In this case the thermometer should be held in the mouth sideways, in order that the teeth may not bite the lens through the broadened opening.

The shield was designed particularly for taking the temperatures of children. It allows us to do that in the mouth in many cases where we should otherwise have to use the axilla. It is not so useful for very young children as for those old enough to act intelligently, yet whom we are afraid to trust with unprotected thermometers in their mouths.

The shield was made for me by Stoddard Brothers, of Buffalo.  
186 ALLEN STREET.

## Miscellany.

The Section in Neurology and Medical Jurisprudence of the American Medical Association is evidently in good hands this year, with Dr. Charles K. Mills, of Philadelphia, as chairman, and Dr. James G. Kiernan, of Chicago, as secretary. This is shown by the following preliminary programme: Anorexia Nervosa, by Dr. William Osler, of Baltimore; Evidences of Paranoia gleaned from the United States Patent Office, by Dr. Irving C. Rosse, of Washington; Acromegaly, by Dr.

Harold N. Moyer, of Chicago; On the Weight of the Brain, by Dr. Henry H. Donaldson, of Chicago; Paretic Dementia in Women, by Dr. Harriet C. B. Alexander, of Chicago; Suggestions on the Treatment of Sclerosis of the Spinal Cord, by Dr. Daniel R. Brower, of Chicago; Occupation Neuroses affecting the Muscles of the Neck, and Syringomyelia, by Dr. Archibald Church, of Chicago; Malpractice in Insane Hospitals, by Dr. James G. Kiernan, of Chicago; Hemiparaplegia; Report of a Case completely recovered after One Year's Duration, and Aural Vertigo (Ménière's Disease), by Dr. L. Harrison Mettler, of Chicago; Race Degeneracy and the Jaws, by Dr. E. S. Talbot, of Chicago; Remarks on the Therapeutical Use of Static Electricity, by Dr. G. F. Lydston, of Chicago; Thoughts on the Causation of Insanity, by Dr. T. H. McBride, of Milwaukee; Recent Discoveries and Observations bearing on the Subject of Poisoning from Exposure to Arsenical Wall Papers, by Dr. James J. Putnam, of Boston; American Inebriate Asylums, by Dr. Thomas D. Crothers, of Hartford; Transverse Myelitis, by Dr. E. D. Fisher, of New York; What should constitute Legal Responsibility, in the Medical Sense, in Insanity? by Dr. Landon Carter Gray, of New York; On the Proper Method of determining whether an Alleged Lunatic shall be declared Legally Insane or Not, by Dr. Græme M. Hammond, of New York; The Care of Epileptics, by Dr. Frederick Peterson, of New York; Syphilis of the Cord simulating Tabes, by Dr. Bernard Sachs, of New York; Some Medico-legal Experiences in Railway Cases, by Dr. Thomas G. Morton, of Philadelphia; Some Points in the Weir Mitchell Rest Treatment, by Dr. Wharton Sinkler, of Philadelphia; A Study of the Gliomatous Process in the Spinal Cord, illustrated by Microscopical Sections, by Dr. James Hendrie Lloyd, of Philadelphia; The Symptomatology of Cerebellar Tumor, by Dr. Francis X. Dercum, of Philadelphia; A Study of the Ocular Symptoms in Friedreich's Disease, by Dr. Charles A. Oliver, of Philadelphia; Has the So-called Suspension Treatment of Diseases of the Spinal Cord proved an Addition to our Therapeutics? by Dr. Hobart A. Hare, of Philadelphia; Notes on the Treatment of Exophthalmic Goitre, and Insanity in Childhood, by Dr. J. Madison Taylor, of Philadelphia; A Contribution to the Study of Friedreich's Ataxia, by Dr. Charles W. Burr, of Philadelphia; The Diagnosis of Lead Convulsions, by Dr. D. D. Stewart, of Philadelphia; A Consideration of the Different Trigeminal Operations for the Relief of Pain, by Dr. John B. Deaver, of Philadelphia; Experiences of a Chemist with Delusional Insanity, by Dr. Henry Leffmann, of Philadelphia; Hemianopsia and Certain Symptom-Groups in Subcortical Lesions, by Dr. Charles K. Mills and Dr. G. E. de Schweinitz, of Philadelphia; Paranoia in some of its Medico-legal Aspects, by Dr. Charles K. Mills, of Philadelphia; The Early Recognition and Rational Treatment of Moral Imbecility, by Dr. Isaac N. Kerlin, of Elwyn, Pa.; A Case of Subcortical Cyst of the Lower Part of the Ascending Parietal Convolution; Operation—Recovery, by Dr. Theodore Diller, of Pittsburgh, Pa.; Insanity of the Aged, by Dr. Frank T. Norbury, of Jacksonville, Ill.; Gynecology in the Insane, by Dr. Annette McFarland, of Jacksonville, Ill.; Dyspepsia as a Nervous Disease; or Indigestion in its Nervous Aspects and Relations, by Dr. C. H. Hughes, of St. Louis; A Case of Syphilis of the Pia simulating Tumor of the Brain; Monospasm and Monoparesis; Operation; Death on the Third Day, by Dr. J. T. Eskridge, of Denver, Col.; The Inadequacy of the Morbid Anatomical Changes found post mortem to Explain the Manifestations of Insanity, by Dr. H. A. Tomlinson, of St. Peter, Minn.; Degrees of Responsibility as found in the Insane, by Dr. R. M. Phelps, of Rochester, Minn.; Surgery in the Insane, by Dr. C. B. Burr, of Pontiac, Mich.; and The Special Influence of Alcohol on the Body, by Dr. T. L. Wright, of Bellefontaine, O.

**Rest in Cardiac Disease.**—At a meeting of the Brighton and Sussex Medical Society, reported in the *British Medical Journal* for March 25th, Dr. Lauder Brunton read a paper on this subject. "He sketched the condition of the circulation in a bad case of mitral disease, and showed that it closely approximated to the condition after death, where the arteries were empty and the veins overfull. He demonstrated, by means of a partially stopped syringe, that the mere loudness of a murmur did not necessarily mean great incompetence of the valve. In mitral disease there were three causes of regurgitation—thickening and contraction of the valves, dilatation of the auriculo-ventricular opening, and



inco-ordinated action of the musculi papillares. This last he had first observed in dogs poisoned by digitalis. The second case occurred as the result of overstrain in young and quickly-growing persons, in chlorosis, in enfeebled hearts after acute disease, in fatty heart, and in the hypertrophied heart of aortic or chronic renal disease. Cases of dilatation from overstrain in boys and in chlorotic girls were narrated. These were treated by carefully regulated exercise, or 'comparative rest,' as opposed to 'absolute' rest. Massage was a valuable adjunct to this treatment. He thought the cases of weak heart action after influenza were due to a short and sharp febrile attack weakening the heart, but not lasting long enough to enfeeble the limb muscles and prevent active exercise. These cases, and some of fatty heart and early atheroma of the aorta, Dr. Brunton thought better treated by graduated exercise on Oertel's plan than by absolute rest. In many persons over middle age, before any signs of heart failure appeared, a slight murmur over the aorta, just above the valves, might often be heard. Such cases improved under ten-grain doses of iodide of potassium, with graduated exercise and attention to general hygiene. Passing on to consider absolute rest in advanced cases of mitral disease, Dr. Brunton again described the condition of the circulation, and showed that the albuminuria was due chiefly to the venous engorgement of the kidney, causing actual pressure upon the incompletely filled artery of the glomerulus and the tubules, thus causing a real mechanical impediment to the urinary secretion. This was still further increased by pressure on the ureter when the abdomen was distended with fluid. By tapping the abdomen or giving purges, and administering digitalis and other cardiac tonics, this impediment could be greatly overcome. When such means failed, absolute rest—which meant that the patient was not allowed to move a muscle for any purpose, and was kept in bed on a hair mattress—often did great good. In such cases Dr. Brunton advised a purely milk diet, which gave sufficient nourishment without overloading the system, and the lactose acted as a diuretic. The milk diet was conjoined with daily massage. Dr. Brunton showed how massage emptied the lymph spaces around the muscles and increased the flow of blood to the tissues, thus aiding the elimination of waste products, and helping to bring fresh nourishment to the tissues. The process he likened to raking out the ashes of a fire and adding more fuel to it. Massage took the place of exercise and helped to clear away oedema, and it also greatly relieved the sense of fidgetiness and unrest. By the combined use of absolute rest, cardiac tonics, milk diet, and massage, many patients, who had apparently only a few days to live, might be restored."

**The late Dr. George C. Shattuck, of Boston.**—*The Boston Medical and Surgical Journal* prints the following obituary notice of the late Dr. Shattuck:

"Dr. George C. Shattuck was born in Boston in 1813, and died at his home in Boston, March 22, 1893. His father and grandfather were both physicians of large practice and wide experience, the former in Boston, the latter in Worcester County. His mother was Eliza Cheever Davis, a descendant of old Boston merchants, and daughter of the first speaker of a Massachusetts House of Representatives under the Constitution of the United States. He went to the Boston Latin School, and subsequently to the famous Round Hill School, established at Northampton, Mass., by Messrs. George Bancroft and Joseph G. Cogswell. He graduated from Harvard College in 1831, having among his classmates Wendell Phillips and J. Lothrop Motley. After a year spent at the Harvard Law School, in obedience to his father's wishes, he entered the Harvard Medical School, from which he graduated in 1835, taking some additional courses at Bowdoin, and with his father's personal friend, Professor Lincoln, at Burlington, Vt. He then spent three years in Europe, principally in Paris and London, where he came under the influence and made the acquaintance of the principal clinical teachers of that day.

"In common with his friends Bowditch, Gerhard, Stillé, and Metcalf, he was much influenced by the methods, the teaching, and the personality of Louis, with whom he kept up his intimacy until the latter's death, forty years later. He translated into English Louis's work on yellow fever. At Louis's instigation, he crossed over to London and spent some time in the London Fever Hospital, acquiring data for the

accurate differentiation of typhus and typhoid fevers, a question which was still occupying Louis's attention, although his book, in which he introduced the name 'typhoid,' appeared in 1829. Dr. Shattuck's experience with typhus in London, and his friend Dr. Stillé's experience with it in Philadelphia, under Gerhard, before going to Paris, gave them materials for papers before the Paris Society for Medical Observation, in 1838. These papers were of signal service in establishing the distinctions between typhus and typhoid fevers which Louis had suggested, but which the infrequency of typhus fever in Paris had given French physicians in general little opportunity to verify.

"On returning to Boston, Dr. Shattuck immediately entered upon the practice of his profession, for which he always had a genuine enthusiasm, with his father. In 1840 he married Miss Brune, daughter of F. W. Brune, of Baltimore. He was appointed visiting physician to the Massachusetts General Hospital in 1849, upon the resignation of Dr. Oliver Wendell Holmes. He served in this capacity for thirty-six years, and upon his resignation, in 1885, was appointed to the Board of Consultation. In 1855 he was appointed Professor of Clinical Medicine in the Harvard Medical School, and in 1859 was transferred to the chair of Theory and Practice. This professorship he held until 1874. He was during many years dean of the medical school, at a time when the school property and policy were entirely controlled by the faculty, and when, but for the name, it was, to all intents and purposes, a private undertaking. As professor and as dean, Dr. Shattuck's disinterested unselfishness in seeking to promote what he considered the interests of the school and of the students, without regard to the effect upon his own position or preferences, was a marked characteristic. Several of the school's best teachers would have been lost to it without his persistent advocacy of their appointment; and in more than one instance place was made in his own department for those who could not be provided for in other departments. His advocacy of an extension of teaching, outside of the regular school lectures, to younger men in quiz classes and otherwise, was practical as well as theoretical. Practical, inasmuch as he gave for this purpose the use of the large and convenient room in his office building. Had he been supported in these efforts, the school might have had an earlier development in this important direction. He introduced the clinical conference, which has since proved a valuable feature in the various departments of the school.

"Among Dr. Shattuck's colleagues at the Harvard Medical School were Dr. O. W. Holmes, Dr. H. I. Bowditch, Dr. H. J. Bigelow, Dr. D. Humphreys Storer, Dr. E. H. Clarke, Dr. D. W. Cheever, and Dr. J. C. White.

"In 1866 he delivered the annual address before the Massachusetts Medical Society, on The Medical Profession and Society. In 1872 and 1873 he was president of the society. For many years he was chairman of its committee on publications. He was a member of the American Academy of Arts and Sciences, vice-president of the American Statistical Association, an honorary fellow of the Philadelphia College of Physicians, a member of the Paris Society for Medical Observation, and of the leading medical societies of Boston.

"Dr. Shattuck had, as has been said, a real enthusiasm for the practice of his profession, but his activity was much interfered with at a critical period by a loss of health and consequent enforced rest and absence. His interests, however, were varied, and were not confined solely to medicine. Ecclesiastical and educational questions occupied much of his time and thought. He was very conversant with forms of religious belief and questions of church government, both at home and abroad, in the past and at present. His own church, the Protestant Episcopal, and its services, were very dear to him. He knew and had thought much about schools and colleges, and always had a keen interest, which he may be said to have inherited from his father, in the training of young men. His interest in religion and education led him to found St. Paul's School, at Concord, N. H., and to assist in establishing a similar institution at Faribault, Minn. For a number of years he delivered annual lectures on physiology and hygiene to the students at Trinity College, Hartford, Conn., and at St. James's College, Maryland.

"Dr. Shattuck was a man of excellent judgment and discrimination, of a very liberal training, of wide acquaintance with the world and with human nature, of a firm purpose but a tender heart, of a rare unselfish-

ness, a constant courtesy and thoughtfulness for others. Of deeply religious instincts and beliefs, he still had an invariable charity for all men and all differences of opinion and belief. He had, moreover, a keen sense of humor, and was a delightful companion whether at home or abroad. In a word, he combined many characteristics not often united in one person. He had a genius for friendship, and the old friends for him were always the same. He was a man who looked at this world and beyond it to the next in a truly broad and catholic spirit. He was not too good for this world or the work of this world; but if he was not good enough for a better one, there will be few who find place in such."

**The Pan-American Medical Congress.**—The organization of the Section in Diseases of Children is completed, and we learn that the arrangement of the programme is well advanced. The sessions will undoubtedly prove of great value. American physicians desiring to read papers are asked to communicate at once with the English-speaking secretary, who will be pleased to furnish all needed information. The officers are as follows: Executive president: Dr. John M. Keating, Colorado Springs, Colorado. Secretaries: Dr. F. M. Crandall (English-speaking), No. 113 West Ninety-fifth Street, New York; Dr. Damaso Lainé (Spanish-speaking), Media, Pa. Honorary presidents: Dr. S. S. Adams, Washington; Dr. A. D. Blackader, Montreal; Dr. Samuel C. Busey, Washington; Dr. Charles Warrington Earle, Chicago; Dr. F. Forchheimer, Cincinnati; Dr. L. Emmet Holt, New York; Dr. A. V. Meigs, Philadelphia; Dr. W. P. Northrup, New York; Dr. J. O'Dwyer, New York; Dr. C. I. Putnam, Boston; Dr. T. M. Rotch, Boston; Dr. J. Lewis Smith, New York; Dr. Louis Starr, Philadelphia; Dr. J. E. Winters, New York; Dr. Jesus Valenzuela, Mexico, Mexico; Dr. I. N. Love, St. Louis. Advisory council: Dr. William D. Booker, Baltimore; Dr. Augustus Caillé, New York; Dr. Henry D. Chapin, New York; Dr. J. P. Crozier Griffith, Philadelphia; Dr. M. P. Hatfield, Chicago; Dr. Thomas S. Latimer, Baltimore; Dr. J. H. Ripley, New York; Dr. August Seibert, New York; Dr. Charles W. Townsend, Boston; Dr. Jerome Walker, Brooklyn; Dr. William Perry Watson, Jersey City.

**The Section in Pathology** has been organized as follows: Honorary presidents: Dr. Antonio J. Amadeo, Maunabo, Puerto Rico; Dr. Francis Delafield, New York; Dr. George Duffield, Detroit; Dr. John Guitéras, Philadelphia; Dr. F. S. Johnson, Chicago; Dr. Morris Longstrech, Philadelphia; Dr. Alfred L. Loomis, New York; Dr. L. D. Mignault, Montreal; Dr. T. Francisco Puelma, Santiago, Chili; Dr. José M. Quiroga, Lima, Peru; Deputy Surgeon-General George M. Sternberg, U. S. Army; Dr. Clark Stewart, Minneapolis, Minn.; Dr. Joshua M. Van Cott, Brooklyn, N. Y.; Dr. Joaquín Vértiz, City of Mexico; Dr. William H. Welch, Baltimore; Dr. J. J. Cornilliac, St. Pierre, Martinique; Dr. W. T. Councilman, Boston, Mass.; Dr. Juan Landeta, Havana, Cuba; Dr. John H. Musser, Philadelphia; Dr. E. O. Shakespear, Philadelphia. Executive president: Dr. John Guitéras, 4914 Sansom Street, Philadelphia. Secretaries: Dr. David Inglis (English-speaking), 21 State Street, Detroit, Mich.; Dr. Louis F. Criado (Spanish-speaking), 147 Fort Greene Place, Brooklyn; Dr. Wernicke (Victoria 1194), Buenos Aires, Argentine Republic; Dr. Enrique Hertzog, La Paz, Bolivia; Dr. Leopoldo Mendes Costa, Rio de Janeiro, U. S. of Brazil; Dr. John Caren, Toronto, Canada; Dr. Raimundo de Castro (Salud esq. & Gervasio), Havana, Cuba; Dr. Nicolás Osorio (Calle 13 núm. 181), Bogotá, Colombia; Dr. J. Carreau, Point à Pitre, Guadeloupe, F. W. I.; Dr. Samuel González, Guatemala City, Guatemala; Dr. F. L. Miner, Honolulu, Hawaii; Dr. Rafael Fiallos, Tegucigalpa, Honduras; Dr. Francisco Hurtado (León 9), Mexico, Mexico; Dr. J. Martinez, Granada, Nicaragua; Dr. David Matto (Facultad de Medicina), Lima, Peru; Dr. Alfredo Vidal y Fuentes (Sierra 8), Montevideo, Uruguay; Dr. M. M. Ponte, Caracas, Venezuela.

**The City Board of Health.**—Dr. Joseph P. Bryant has resigned his office of commissioner, and been succeeded by Dr. Cyrus Edson; Dr. Charles F. Roberts has been made sanitary superintendent, in place of Dr. Edson; Dr. Frank H. Dillingham has been appointed assistant sanitary superintendent, in place of the late Dr. E. H. James; and Dr. Alvah H. Doty has succeeded Dr. Roberts as chief inspector in the bureau of contagious diseases.

**The late Dr. William B. Ballou.**—At a stated meeting of the Society of the Alumni of Bellevue Hospital, held at the Hotel Brunswick, Wednesday, April 5th, the following resolutions were adopted:

*Whereas*, In the death of Dr. William R. Ballou the Society of the Alumni of Bellevue Hospital has lost a fellow-member who gave promise of an eminent professional career, and one who, by his geniality, endeared himself to all,

*Resolved*, That we express the great loss sustained by this society, the profession, and the community, and extend to his bereaved family our heartfelt sympathy in their affliction.

*Resolved*, That these resolutions be spread upon the minutes of this society and a copy be sent to his family and to the medical journals of this city.

[Signed.]

{ JOHN F. ERDMAN,  
W. N. HUBBARD, } Committee.  
H. S. HOUGHTON, }

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

## Original Communications.

## CARDINE;

## THE EXTRACT OF THE HEART.

ITS PREPARATION  
AND PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS.

BY WILLIAM A. HAMMOND, M. D.,

SURGEON-GENERAL, U. S. ARMY (RETIRED LIST).

IN continuation of the article on Certain Organic Extracts, etc., which appeared in the *New York Medical Journal* for January 28, 1893, I have to submit the following remarks on the subject of cardine, which, as the name imports, is the extract of the heart, and in this instance of the heart of the ox. I have experimented with the heart of the sheep, the dog, and the common fowl, but that of the ox has afforded the most decided physiological effects, and is therefore to be preferred. So far as I am aware, no such preparation as the one I am about to describe has yet been used in medicine, nor has the organ, to my knowledge, been employed for the treatment of the disorders of the heart unless, perhaps, by the German physician of some forty years ago to whom I alluded in my previous communication as having proposed to cure diseases of the various organs of the body by causing the subjects of them to eat the corresponding organs of animals. As I then stated, my reference is entirely from memory of what I had read in medical journals at about the time of the publication of his essay.

Cardine, as used by me, is prepared as follows: One thousand grammes of the finely minced fresh heart of the ox, previously well washed in a saturated solution of boric acid, are submitted to the action of a menstruum consisting of twelve hundred grammes of glycerin, one thousand grammes of a saturated solution at 60° F. of boric acid, and eight hundred grammes of alcohol. These proportions are the result of a large number of experiments and are those, I think, which are most efficacious in extracting from the heart its peculiar principle.

The mixture is made in a strong porcelain, glass, or glazed earthenware jar provided with a closely fitting cover, and every day for a period of at least eight months—and I am disposed to think that a year is preferable—the mixture is stirred and the heart substance subjected to strong pressure with a boxwood masher, such as is used in the preparation of certain vegetables for the table. If a much less period than eight months is given to the process of maceration the product is inefficient, and indeed, as I have said, it is better to let the extraction go on for a much longer period.

Experiments that I have made with the freshly expressed juice of the heart, either pure or in combination with glycerin or alcohol in various proportions, show that it is absolutely without physiological or therapeutical influence other than that of the transitory stimulating effect of the alcohol when the proportion of this substance is great.

At the end of the period of maceration the supernatant liquid is poured into the upper receptacle of a porous stone

filter and allowed to percolate through into the lower vessel. The finely comminuted heart substance remaining is subjected to very strong pressure in a metallic press and the resultant juice also poured into the filter. The filtration is a very slow process, the solution of the heart being even more refractory than that of the brain and other nervous structures, and several weeks are required for the completion of the process. Percolation through filtering paper will not answer.

As thus prepared, the solution of cardine is a clear, transparent liquid of a pale straw-color, with the specific gravity of 1.070. Under the microscope it exhibits no morphological constituents; it does not change, so far as I am aware, under any ordinary circumstances, and no bacteria possess sufficient vitality to exist in it. It is perhaps better, however, that it should be kept in a cool place in well-stoppered phials.

I have said that it is unchangeable under ordinary circumstances, but occasionally when the phials containing it have been subjected to extreme variations of temperature and to agitation, about two per cent. of them will exhibit a slight flocculent precipitate which is albuminous in character. When this occurs, filtration through Swedish filtering paper or through a funnel, the throat of which is closed with absorbent cotton, suffices for its removal. The remaining liquid, under these circumstances, loses none of its properties.

Of course the most rigid antiseptic precautions must be taken in the preparation of this and all the other animal extracts which I have used. It must be borne in mind, however, that as the extract is to be injected into the blood, the substances employed for the prevention of septicism must be such as are not deleterious to the human system or which of themselves have any marked or positive physiological effect. Carbolic acid and corrosive sublimate, therefore, are out of the question. Heat and boric acid I have found to be entirely efficacious, and the latter, forming as it does one of the constituents of the mixture, is especially eligible.

A great many experiments were required in regard to the dose of cardine to be hypodermically administered, and it is therefore necessary to insist upon a due observance of the proportions of the various substances entering into its composition being strictly adhered to. Regard must also be paid to the period of time during which maceration is continued. Thus action for a month or two produces a liquid which contains such a small amount of the essential principle that it is almost, if not entirely, inert. Maceration for six months results in a product the effects of which are perceptible, but of which the dose must be fifteen or twenty minims, and even then the physiological and therapeutical influence is feeble. After eight months, however, the action is much more decided, and five minims hypodermically injected is a good average dose for an adult, some persons requiring a minim or two more, while with others a minim or two less suffices. I have arranged the dose after many experiments upon healthy men and women of average size, and have accordingly fixed upon five minims



as the proper dose of cardine after a maceration of from eight to ten months.

I can not too strongly insist upon proper filtration of cardine, as well as of all the other animal extracts obtained by my process. It is absolutely essential that no morphological matter should be present in the liquid used for hypodermic injection. If this precaution is not observed, abscesses, and even more serious disturbance, will most certainly follow. After proper preparation cardine is, as I have said, absolutely fatal to bacterial life. At the time of injection it is well, though not essential, to add to the quantity used a like amount of sterilized distilled water. I say sterilized, for, although I am sure that bacteria will not live in pure cardine, they may be able to live in it when it is diluted with water.

The physiological effects of cardine, in their order of occurrence, as nearly as I can arrange them, are as follows:

1. Within ten minutes the pulse becomes fuller, stronger, and sometimes more frequent. The sphygmograph shows this very clearly. The accompanying tracing (Fig. 1) is that obtained from a man, thirty years of age, in

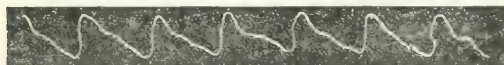


FIG. 1.

good health. The pulse at the time was beating 76 in a minute.

Fig. 2 shows a sphygmographic tracing taken from the same person ten minutes after receiving a hypodermic in-



FIG. 2.

jection of five minims of cardine. It is scarcely necessary to comment on the differences which exist. The influence in increasing the force and frequency of the pulsations is remarkable, and it is still more remarkable that a tracing (Fig. 3) taken eight hours subsequent to the injection



FIG. 3.

shows that the effect upon the heart was still present in a scarcely diminished degree.

2. These tracings show what is also evident from a digital examination of the pulse—that the arterial tension is augmented.

3. Increasing, as cardine does, the heart pressure, the effect upon the kidneys follows as a logical consequence. Many observations, made as far as possible under exactly similar conditions, establish the fact that the amount of urine daily excreted is increased by from ten to eighteen ounces.

4. The number of red corpuscles in the blood is increased by the use of cardine.

Thus I found that in a woman in good general health

and development the number of red corpuscles, as determined by the hæmocytometer, was four million three hundred thousand to the cubic millimetre. After two hypodermic injections of cardine daily for five successive days the number of red corpuscles had increased to four million eight hundred and twenty thousand. By means of the hæmometer similar results were obtained, the degree of coloration being 83° before the injection of the cardine, while after the use of this substance, continued as in the previously mentioned experiment, it rose to 96°.

Many experiments of like character have led to similar conclusions. Indeed, I know of no fact more definitely established than this of the effect of cardine upon the composition of the blood.

My object in the present communication is mainly to show the physiological effects of cardine, leaving to the intelligent physician the office of drawing his own deductions as to its therapeutical uses. It is clearly a heart tonic of great power, a diuretic of notable value, and an agent capable of exercising a marked effect over the composition of the blood.

In cases of cardiac weakness, from whatever cause it may arise, cardine is of inestimable value. It appears to me, from the few cases in which I have employed it in this connection, to be useful in fatty degeneration of the heart, improving the nutrition of the organ not only by its action on the blood, to which I have made reference, but by its effects on the nervous organization of the cardiac tissue.

In one patient under my charge—a gentleman from North Carolina in whom the pulse was, while he was in a state of rest, only 40 in a minute, and in whom the heart impulse was exceedingly weak, and in whom also there was an anasarca condition of the feet and legs—cardine, in five minim doses administered hypodermically twice daily, began at once to exercise a beneficial effect. The pulse rose to 64 and occasionally to 70 in a minute. The heart-beat was increased in force, the amount of urine augmented, the dropsy of the extremities disappeared, and many symptoms of gastric and intestinal dyspepsia from which he suffered were entirely dissipated, and this after about a month's treatment. Six weeks have elapsed and this good condition continues in every respect. That it will remain as at present without further treatment is perhaps scarcely to be hoped for, but I think this result is quite within the range of possibility; and should the symptoms recur, I have no doubt that cardine will prove equally effectual as in the first instance.

In another case of a gentleman in whom, from the excessive use of tobacco, the heart rhythm was intermittent and otherwise irregular, this condition disappeared after a treatment of only four days' duration, and the patient has now a heart apparently as sound as it ever was.

But I have employed cardine more frequently in those cases of nervous prostration attended with anæmia and sometimes chlorosis. In such patients its action is so prompt and effectual as to excite surprise in all who have witnessed the change. In all these cases I have verified the great improvement in the appearance and apparent condition of the patients by the use of the hæmocytometer and hæmometer. In mild cases a week or ten days' treatment has been sufficient, but never more than four or five weeks.

A distinguished physician from the Dominion of Canada consulted me in January last for great cardiac irritability, the result of overwork, both professional and political. I treated him for two or three days with hypodermic injections of cardine, and the result was in the highest degree gratifying. The attacks of vertigo from which he had suffered, and which were clearly the result of weak heart, entirely disappeared. He returned home and entered at once with energy into an exciting political campaign, from which he emerged successfully after making over one hundred speeches. He writes me that he endured this tremendous exertion without discomfort, and that the cardine worked wonders with him.

In a similar case, that of a prominent physician of Indiana, the heart-beat was feeble and irregular, and there was constant vertigo while walking, or even while in a standing position. In this case the relief was equally prompt. He remained under my care only three days, being summoned home by telegram by sickness in his family, after making arrangements to procure a sufficiency of cardine for home use, and I advised him to continue it for at least a month. He arrived home before the cardine reached him, and, feeling the need of it, he at once telegraphed for it to be sent to him as soon as possible. He informed me that the effect upon him was so decided that, whereas formerly he was loath to walk even a few steps for fear of being overpowered by dizziness, of single injection enabled him to walk as much as he pleased for four or five hours afterward.

Of course, it is too soon to fix definitely the therapeutic value of cardine, or, in fact, of any other of the animal extracts made by my process. There is danger that over-enthusiastic and inexperienced or ignorant persons will claim too much for them. Already I see that they are spoken of in various quarters as "elixirs of life," and that absurd stories are told of their power. No one person can be expected to determine the value of these extracts. That must be done by large numbers working toward the same end and for long periods. I do not even pretend to assert that there may not be some better method of extracting the active principle of the several organs of the body which I have subjected to experiments. I only say that I have labored more than three years in the attempt to find the best method and that my experience should go for something, and I feel called upon to warn the profession against the crude experiments of sciolists, who rush in with heavy foot where angels should tread lightly. I have heard of one of these experimenters who makes a mixture of brain substance, glycerin, and phosphate of sodium, and who injects this milky-looking compound into the blood. Of course, inflammation ensues, abscesses will probably follow, and even worse consequences are to be feared. Glycerin of itself is not a preservative of the nervous tissue, except for a very short time, whereas I know that the mixture I use will keep it for at least a year and, I presume, indefinitely.

As to the essential characteristics of cardine, while I am not able to give it a place in the nomenclature of organic chemistry, I am sure, from a consideration of the process by which it is obtained, that it is a substance derived from the heart. There is no escape from this conclusion. As to how it acts, I can at present only call attention to the theory that I proposed in my first paper on the subject, and that is briefly:

That all the organs of the body possess the power, when

in a state of health, of secreting from the blood the peculiar substance that they require for their nutrition, and that they take this substance and no other, never making a mistake in the matter. The brain separates brain substance; the heart, heart substance, and so on. If through disease or from derangement of function they lose this power, or if the peculiar pabulum they require be not in the blood in sufficient quantity, their functions cease to be normal. General debility, producing a diminution of nerve force, may cause the loss of this power, or it may result from local disturbance either of structure or function, or some profound shock to the organism may so interfere with hæmotosis that the blood no longer contains the material which the organ needs. In either case, if we supply to the blood the peculiar principle which a diseased or disordered organ requires, we do that which Nature, unassisted, can not or does not do.

Cardine, therefore, if this theory of its action be correct, nourishes the heart. It is the substance which an ill-conditioned heart must have for its well-being. It is already in a fit form for assimilation, and it acts with a promptitude, a certainty, and a degree of permanence of which no other heart tonic within my knowledge is capable.

It follows also that in all weak conditions of the system, and especially in those in which the blood is below the normal standard, cardine must prove to be of inestimable value. And in other and more serious affections, such as those in which depurative organs of the body, especially the kidneys, fall below the healthy standard of function, cardine, increasing as it does the heart pressure, may augment the bodily comfort and materially prolong life.

Cardine is not an annihilator of the influence of old age, but my experience convinces me that it lessens the effects of this factor of deterioration so far, at least, as the heart is concerned. This organ, as is well known, is one of the first to fail in physiological power, and this is shown not only by the examination of the pulse and of the heart itself, but by the accumulation of fluid, especially in the lower extremities, owing to a diminution of the heart pressure. Cardine, taken in conjunction with cerebrine, assuredly counteracts this influence, for, owing to the increase of the cardiac pressure, the passive anasarca condition disappears, and the other indications of heart weakness are either greatly mitigated or altogether abolished. How long this power will remain in any particular case I am not at present able to say, but I know that a daily hypodermic injection continued for six months does not yet reveal any sensible loss in its influence.

**The New York Academy of Medicine.**—Dr. J. West Rossveck was announced to read a paper entitled *A Consideration of the Causes of Acquired Immunity from Infectious Diseases* at the meeting of Thursday evening, the 26th inst., and Dr. Daniel Lewis to read one entitled *Notes of a Case of Uterine Cancer—Remarks on Diagnosis and Treatment.*

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 26th inst., Dr. H. Hoyle Barrs will read a paper on *A New Method of controlling Tonsillæ.*

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 27th inst., the subject of *The Anatomy and the Practical Significance of shortening the Round Ligaments in Displacements of the Uterus* will be treated of by Dr. James E. Kelly and F. W. Johnson, of Boston, and Dr. George Edebohl.





thylamine, diethylamine, dimethylamine, and trimethylamine, cadaverin, and putrescin.

Lecithin has been decomposed into a fatty acid and a ptomaine—cholin.

In edible mussels a ptomaine exists which is very poisonous. It manifests itself in three forms—the exanthematous, choleraic, and paralytic. It is named mytilotoxin.

Reasoning by analogy, we may expect to find that the production of these or similar ptomaines is responsible for the evil consequences of self-infection.

*Pathology.*—The effects of self-infection are seen in no tissue changes which may be regarded as specific lesions. That it leads to alteration in structure and disturbance of function can not be denied, but its chief interest, from a pathological standpoint, is the part it takes in the production or aggravation of other diseases, in whose ætiology it occupies an important position.

Those connective-tissue changes described as cirrhosis (in organs) and sclerosis (in nerve tissue) are justly attributed to the action of persistent, passive congestion, resulting from chronic inflammation.

That this chronic inflammation is induced and perpetuated by long-continued irritation is self-evident. Therefore the poisonous and irritating products of abnormal intestinal digestion, entering the circulation by the means described above and circulating through various organs and tissues of the body, must necessarily furnish that irritation which is considered necessary to the production of hardened atheromatous arteries, contracted kidney, cirrhotic liver, and sclerosed nervous system.

It is significant that as the meridian of life is passed these connective-tissue changes make their appearance with such uniformity as to be considered a normal senile change, and that *pari passu* with those changes follow the disturbances of the digestive system characteristic of old age.

Not only the tissues through which it circulates, but the blood itself, suffers from the presence in it of toxic material; anæmia becomes pronounced, and loss of weight and strength is noted.

In order that the blood may contain the material out of which nerve tissue is generated and nourished, there must be a normal digestion of fatty material, leading to the production of lecithin—a compound fat containing phosphorus and nitrogen.

The most delicate and easily disorganized element of the body—the nerve tissue—is the first to manifest the pernicious effects of perverted digestion. To the anæmia of the nervous system and its irritation by septic material are to be ascribed the nervous phenomena which form a prominent group in the symptomatology of this condition. Many forms of nervous disease, notably melancholia and hypochondriasis, recurrent mania and the various degenerations, have their origin in the daily absorption of toxic material from the intestinal tract. The influence of this condition in the production of hysteria has been clearly demonstrated. Irritation set up by products of intestinal fermentation gives rise in many cases to the paroxysms of asthma.

Among the diseases depending upon perversion of function of nerve centers, induced by persistent peripheral irritation of afferent nerves, epilepsy may be taken as a type.

Among the causes operating to set up this irritation, the action of the products of intestinal fermentation must not be overlooked, since in many cases, especially if there be any intestinal symptoms (such as diarrhœa or constipation preceding or following an attack), intestinal disinfection becomes the *sine qua non* of treatment.

Remembering the prevalence of constipation among females, it is a question if the many obscure symptoms of reflex and sympathetic disturbance accompanying diseases of the female generative organs are not due primarily to irritation originating in the intestinal canal.

The local influence of septic matter carried by the portal and lacteal vessels to the lungs has been named as a predisposing (Reynolds) cause of phthisis and chronic bronchitis.

The effect upon the nerve centers of the absorption of  $H_2S$  is seen in the attacks of syncope and collapse. Diseases of the skin (acne vulgaris and especially eczema) are induced and aggravated by toxic absorption from the intestines. Disturbance of the heart's action, perversion of sensation, functional or intermittent headaches, disturbance of the special senses, and severe neuralgias are some of the results of toxic intestinal absorption.

*Ætiology.*—In considering the ætiology of this condition it must be borne in mind that the production of toxic material in the intestinal tract is not *per se* abnormal, but becomes pathological only when its proper elimination is prevented. Intestinal and gastric indigestion may be taken as a preliminary step in its formation. All conditions which impair the functional activity of the liver, kidneys, and skin favor its development.

The neuroses, alcoholism, excessive use of tobacco, the anæmias, malarial toxæmia, organic disease of the respiratory, circulatory, and metabolic systems, or of the digestive tract and its glands, are predisposing causes.

Heredity seems to exert an influence, but it is a question if its action can not be traced to the evil influences of bad cooking, irregular hours, or careless habits to which all the members of a family are similarly subjected.

The inability to digest certain articles of food, although craved and enjoyed by the palate, must be remembered, since it is plain that such material aids directly in the production of intestinal fermentation and putrefaction.

A sedentary life, lack of proper exercise, too generous or too restricted diet, irregular hours for eating, imperfect mastication and insalivation due to rapid eating (an American characteristic), and the dilution of the gastric juices by excessive amounts of fluid, aid in the production of this condition. But it is the nervous system that is especially responsible in a majority of cases.

The proper secretion of the intestinal juices and efficient peristalsis are impossible when brain and nerves receive no rest. The nervous control of the higher centers over the digestive functions is daily demonstrated.

It is the man absorbed in the cares of business or pro-

fession, subjected not only to prolonged mental labor and nervous strain, but to anxiety and worry, and the woman, engaged in the exhausting duties of household or society, who suffer most from self-infection. It is met with rather more frequently in men than in women, and manifests itself in the middle or later periods of life.

In the female, menstrual derangements and ovarian irritation exert a direct causative influence, producing reflex irritation transmitted by the solar plexus.

Constipation, itself a symptom of intestinal derangement, prevailing as extensively as it does, has, as will be easily understood, an especially favorable influence.

*Symptomatology.*—To present the symptomatology of this affection in a systematic and comprehensive manner is no easy undertaking. The history of several cases taken from the case-book will be used as a framework upon which to construct a clinical picture of the disease.

CASE I.—A gentleman, forty-five years of age, born and brought up on a farm, had for twenty years been engaged in a business requiring prolonged mental labor and nervous strain. Family history excellent. He was strictly temperate, but used tobacco to the extent of two or three cigars a day. Had enjoyed good health, with the exception of an attack of "chills and fever" seven years before, up to within six months. Appetite usually good, began to be capricious; he became easily tired and his sleep was unrefreshing.

To concentrate his mind upon business became more and more difficult, and the attempt was followed by mental exhaustion. He grew irritable and easily worried. After meals he noted a feeling of distention of the abdomen, shortness of breath, rumbling noises in the bowel, and the passage of large quantities of very offensive gas *per anum*. The bowels were usually slightly constipated, rarely requiring medicine; the stools light in color, covered with mucus, and offensive. Diarrhea was sometimes present, the stools being black in color. A bad taste in the mouth in the morning and the appearance of minute, dry scales upon the back of the forearm and hands were ascribed by him to biliousness.

The chief source of annoyance, however, lay in his head, experiencing difficulty in falling asleep, awakening early in the morning unrefreshed, and unable to sleep again. A constant dull frontal headache, tinnitus aurium, vertigo, and a feeling as if the ground were about to "fly up and hit him," were complained of. He became very much depressed in spirits, and possessed of the idea that his mind was giving way. His heart beat like a trip hammer; palpitation and sharp pains annoyed him. The sexual appetite was increased and seminal losses had been noticed, and a constant loss in weight.

Physical examination revealed a careworn, anxious face; deep lines about forehead and mouth, dull eyes, and a sallow skin. The heart's action was labored, respiration rapid and shallow, pulse small and compressible, and venous system full. (The interference with the right ventricle is a noticeable feature of this condition.) There were no murmurs, but the arteries were beginning to show atheromatous changes, the liver dullness was slightly increased, spleen normal. Abdomen tympanitic, rumbling upon palpation. Urine acid. Specific gravity, 1.025; contained excess of urates, uric-acid crystals, and excess of indican. No albumin or casts. Patellar and other reflexes normal.

The case was diagnosed as self-infection. Treatment, hereafter described, laid down, and after a sea voyage the patient returned a new man and resumed business.

CASE II.—A young woman, twenty-four years old, family history good; had been fairly well up to within two years, when the death of a parent caused her profound grief and mental depression. Constipation of an obstinate nature had existed for a long time, to which treatment had been applied with but little success.

Menstruation began at thirteen, had been regular and normal until within two years, when it became irregular and scanty. She complained of "insomnia, a conviction of impending disasters," and asserted that for six months she had noticed a tumor growing in her abdomen. Numbness and tingling in the left limb, accompanied by a peculiar sharp pain, which was most severe when she lay in bed and lessened after exercise, had given rise to the diagnosis of "creeping paralysis" by her family physician.

She had experienced several attacks of sudden syncope, preceded by weak, convulsive movements of the right arm and limb; had also felt dizzy and uncertain upon awakening from sleep. Severe neuralgic attacks in face and neck; palpitation of the heart, and a sharp, lancing pain running toward the right shoulder; slight swelling of the feet. Anesthesia of the skin of the feet and limbs, hyperesthesia of the scalp, irritability of the bladder—incontinence at one time and retention at another—were present. Appetite variable; flatulence annoyed and mortified her; physical weakness and marked melancholia completed her misery.

Physical examination revealed extreme anæmia; a sallow, anxious face; anæmic murmurs in vessels; shallow, quick respiration and a small and irregular pulse. No cardiac murmur detected. Lungs normal. Upon the left side of the abdomen, near the umbilicus, an irregular swelling was noted, which, after careful palpation, was diagnosed as small intestine distended with gas. Patellar and other reflexes normal. Urine pale, weakly acid; specific gravity, 1.018, containing phosphates and mucus. No casts.

In this case the diet test and examination of the stools, microscopically and chemically, proved conclusively that marked derangement of the digestive and eliminative functions existed.

Treatment secured prompt amelioration of the condition, and recovery, although gradual, was complete.

CASE III.—In another case, that of a middle-aged man, pronounced perversion of sensory and motor nerves simulated closely the symptoms produced by degenerative changes. Fornication, flashes of heat, tremor, girdle pain, and attacks of syncope, sudden blindness, double vision, drowsiness by day, sleeplessness at night, a darkening of the skin of face and neck, presented a gloomy picture which was intensified by the pronounced melancholia that existed. Thorough intestinal disinfection, restricted diet, improved hygiene, and a trip to Europe effected a perfect cure.

The symptoms referable to the intestinal tract may or may not occupy a prominent position in the history of the case.

There may be distress, pain, and tenderness referred to the stomach or abdomen, persistent flatulence or dilated and knotted intestines; or the intestinal symptoms may be veiled by more prominent disturbances of remote organs, especially of the nervous system, and only careful examination brings to light the fact that the intestinal digestion is at fault. The loss in weight, the peculiar careworn face (which is often pathognomonic), the condition of the circulation, the symptoms of irritation and derangement of nerve centers, and especially the condition of the mind—that of extreme melancholia and hypochondriasis—will oftentimes

suggest the possibility of intestinal toxæmia when direct intestinal symptoms are absent or meager.

Frequently the rational symptoms may be so numerous and diverse as to suggest hysteria or "hypo," yet careful study of them, together and separately, will usually reveal the presence of auto-infection from the intestinal tract.

**Diagnosis.**—In the diagnosis of this condition it is necessary to bear in mind the polymorphous character of the symptomatology. Often easy, often difficult, it requires at all times careful consideration. A methodical study of symptoms and physical signs, frequent examination of urine and stools, and the use of the diet test must never be omitted.

The diet test depends upon the inability to digest one or all of the different classes of food which comprise the ordinary diet. Sweets add to the flatulence; starches are not digested, or voided in excess; fats appear undigested in the feces.

If carefully prepared meats be made a basis of diet, and then one or more of the class of foods not tolerated be given, careful examination of the stools will give conclusive results. It is disagreeable work, but the end deserves the means.

**Prognosis.**—Neglected or unskillfully treated, it is a progressive march from bad to worse, continuing for years, making life a burden, and ending frequently in asylum or suicide. Taken early, patiently examined, and intelligently treated, results will follow which will gratify both patient and physician.

**Treatment.**—The indications for treatment are: 1. To put the digestive system in, as far as possible, a normal condition. 2. To remove all causes which aggravate the condition. 3. Persistent and thorough disinfection of the intestinal tract. The diet must be strictly regulated, both in quantity and quality. Regularity in the hours for eating, a good breakfast, midday dinner, and, above all, a light tea, are the first things to be secured. Meats should be dispensed with for a time, fats withheld, and farinaceous foods—the lightest and simplest—should be taken. Milk, preferably skimmed, or kumyss, should be made the principal article of diet. To this may be added oatmeal or barley in the form of gruel. To the milk diet may be added well-made soups free from fat, animal jellies, and some of the meat extracts. To relieve the monotony, albuminoid food will be called for; oysters eaten raw, fish free from fat, breast of fowl, and scraped raw beef in small quantities may be given. Bread two or three days old and in small quantity, lettuce, spinach, kale, and celery may be allowed.

Coffee, tea, alcoholic beverages, and tobacco must be withheld. The aim should be to keep up nutrition, with as little work upon the digestive system as possible. Gentle means must be used to establish regular and free movements of the bowels. The mineral waters Friedrichshalle, Hunyadi János, Geyser, and Hathorn often accomplish good results. If stronger means be necessary, drastic purgatives must be avoided, since they only aggravate the condition. Cascara sagrada, combined with berberis aquifolium and hyoscyamus, as in the following:

R Ext. cascarae sagradae . . . . . f 5 j;  
Ext. berberis aquifolii . . . . . f 3 ss.;  
Ext. hyoscyami . . . . . f 3 ss.;  
Syr. pruni virginianæ . . . . . 5 jss.

M. Sig.: A teaspoonful at night.

Or the cascara may be given with extract of malt, the latter acting as a ferment upon starches and sugar. Stimulation by the faradaic current, small doses of strychnine, and an abdominal belt are of service when a relaxed condition exists.

The action of the liver must be watched, and, if bile is not secreted in sufficient quantity, euonymin, sanguinarin, iridin, podophyllin, with an occasional administration of the "old reliable" pil. hydrarg., will be found of service.

The action of the skin must be secured by sponge baths, salt-water bathing, or the hydrotherapy furnished at a good sanitarium. It will be found useful in many cases to administer a good tonic; an easily assimilated preparation of iron (such as the ammonio-citrate with carbonate of ammonium, combined with quassia, gentian, and nux vomica) gives good results, or malt extract and the hypophosphites.

For the severe headache, counter-irritation, preferably by the electric current applied to the cervical region.

The second indication for treatment is one to which special attention must be rendered. It has been pointed out in the ætiology that the nervous system is responsible for a great amount of this trouble; therefore special stress is laid upon this portion of the treatment in view of the difficulty in its accomplishment.

Complete mental relaxation and rest must be secured. The power of drugs to do this is often assumed, and unsatisfactory results invariably follow.

The only hope for the business man in this condition is to give up for a time and regain health, or give up forever. There is no middle course. Sedentary pursuits must give way to exercise in the open air, and new sights and scenes will exert their favorable influence if mental worry and anxiety be avoided.

A sea voyage, mountain climbing, rowing, horseback riding, manual labor in field or garden, pleasant company—in short, anything that will effect a complete change in the thoughts and aims of the individual—will constitute the *sine qua non* of proper treatment.

There is perhaps nothing so detrimental to recovery or even improvement as the practice of prescribing sedatives to patients in this condition.

Once used, they are only with great difficulty dispensed with, while their action does not at all resemble Nature's efforts. Rest, proper food and surroundings, novelty and change, are the only therapeutic agents to be relied upon. Cultivate pleasure instead of work, and Nature must do the rest.

The third indication for treatment calls for those agents by whose action the process of fermentation and putrefaction may be controlled and rendered non-toxic. The use of intestinal disinfectants has been warmly advocated and as warmly opposed, such opposition due probably to deficient understanding and faulty administration.

That such drugs as benzoate of sodium, salicylate of



sodium, sulphate of sodium, benzoate of ammonium, naphthol,  $\beta$ -naphthol, creolin, salol, naphthaline, and camphor possess and exert antiseptic properties can not be denied, while bismuth and charcoal have proved their efficiency in controlling gaseous eructation and uneasiness.

But, as all drugs possess selective action and are limited in application, so the antiseptics exert their influences only in the portions of the digestive tract where their solution and absorption are possible. To attempt to disinfect the gastric portion of the digestive tract with salol, or the small intestines with naphthaline or  $\beta$ -naphthol, is an undertaking which will, in all probability, discourage belief in the efficiency of intestinal disinfection.

If the eructations of gas and gastric uneasiness indicate that the stomach digestion is at fault, bismuth, charcoal, and calumba in combination will relieve that condition, while, if the symptoms indicate that the small intestine is at fault, salol, salicylate or benzoate of sodium, camphor, or benzoate of ammonium is indicated.

Also, if the passage of a considerable quantity of flatus or a distended colon points to the large intestine as the seat of the trouble,  $\beta$ -naphthol, naphthol, with the benzoate of ammonium and charcoal will give the best results.

Besides their antiseptic action, the benzoate of sodium and ammonium and salicylate of sodium exert a cholagogue action upon the liver. Combinations of antiseptics with alkalies give better results than antiseptics alone, and a frequent interchange of these agents guard against that toleration which follows the prolonged use of one drug.

In relaxed condition of the bowel, the combination of benzoate of sodium with rhubarb is indicated.

In those cases in which the starches are imperfectly digested and the gastric contents in a state of fermentation, salicin renders efficient service, as it is fatal to bacteria and vibrio, and prevents the reaction of amygdalin and emulsin as well as that of ptyalin upon starch.

Resorcin is also a valuable agent, combining with marked antiseptic qualities an analgesic action upon the intestinal mucous membrane, being superior in this regard to carbolic acid, as producing less irritation.

Ichthylol has been recommended by some writers as a valuable remedy; but no one of the three indications for treatment will prove sufficient. They are interdependent, and must be carefully and thoroughly observed; but in a restricted and proper diet, relaxation, and mental rest lies the best-known treatment for the victim of self-infection.

November 25, 1892.

**The United States Marine-Hospital Service.**—A board of officers will be convened at Washington, on June 26th, for the purpose of examining applicants for admission to the grade of assistant surgeon in the United States Marine-Hospital Service. Candidates must be between twenty-one and thirty years of age and graduates of a respectable medical college, and must furnish testimonials from at least two responsible persons as to character. For further information, or for an invitation to appear for examination, address the supervising surgeon general, United States Marine-Hospital Service, Washington, D. C.

The College of Pharmacy of the City of New York will hold its sixty-third commencement in Carnegie Music Hall on Wednesday evening, the 26th inst., at 7.45 o'clock.

## THE RHEUMATIC THROAT:

A CONTRIBUTION TO  
THE ETIOLOGY OF CATARRH OF THE NASOPHARYNX.  
A CLINICAL STUDY.\*

By WILLIAM C. BRAISLIN, M. D.,  
BROOKLYN.

THE relation which certain acute inflammatory conditions of the faucial tonsils bear to acute rheumatism is well known. Rheumatic sore throat is a familiar term. Cases presenting symptoms and running courses similar to the following are not uncommon:

Mrs. V. P., twenty years of age, a native of Virginia, of strong, healthy appearance, presented herself in the throat room of the Outdoor Department of the New York Hospital. She gave a previous history of having suffered a year ago from a rheumatic inflammation of an acute character, which involved the joints of the left foot. For the past two weeks she had had pain in and swelling of the left ankle joint. There were found, on examination, evident symptoms of acute articular inflammation. For these symptoms she had had no treatment up to this time. The cause for presenting herself, indeed, was not due to the above symptoms, which were complained of as only of secondary importance. The chief complaint was that, for the past four days, she had had a gradually increasing feeling of uneasiness and pain in the throat. It had been necessary for her to sit up during the whole of the previous night because of a feeling of something sticking in the throat. She had a slight cough. On examination, the lungs and heart were found to be perfectly normal, but the tonsils presented the typical appearance of acute catarrhal inflammation.

She was placed on a salicylic mixture, a dose of which was to be taken every four hours, and which consisted of the following:

Acidi salicylici .....	gr. xx;
Ferri pyrophos. ....	gr. v;
Sodii phosphat. ....	gr. j;
Aque. ....	ad $\bar{z}$ ss.

Three days later she reported that the inflammation of the tonsils had almost entirely subsided. The swelling and pain in the foot still remained, with only a slight improvement. Further treatment of the same kind resulted in an entire and speedy dissolution of the tonsillitis, while the swelling and discomfort of the joints were of slower disappearance.

I believe that a still wider knowledge of the pathology of rheumatism will concede to the rheumatic diathesis a greater influence in the etiology of certain chronic throat disorders than is at present attributed to it.

The basis for this belief is founded upon a clinical study embracing fifty cases of rheumatism, conducted for the most part in the medical clinic of the Long Island College Hospital. The condition of the throat was ascertained at the time of the patient's first application for the relief of rheumatic symptoms.

Few of the patients made complaint at this time of any "throat" symptoms. Pain is usually the symptom of which a patient most loudly makes complaint, and this symptom is not often prominent in chronic disorders of the throat. A proportion of the patients, however, in addition

\* Read at a meeting of the Long Island Medical Society, February 2, 1893.

to the symptoms of painful, stiff, and swollen joints, complained of the classical symptoms of post-nasal catarrh. Attention having been directed to the throat in rheumatic cases by these patients, systematic examination was thereafter made, both objectively and subjectively, of every rheumatic patient who presented himself, to the number stated above.

The particular diseases of the throat most commonly found in conjunction with the rheumatic condition were chronic disorders involving some portion of the glandular ring of the pharynx—namely, hypertrophy of the faucial tonsils, and the condition of the nasopharynx variously termed by different authors, but most commonly called nasopharyngeal catarrh.

The proportion of cases in which the arthritic and muscular symptoms of rheumatism coexisted with either or both of these conditions was so large as to change the suspicion into a certainty, in the opinion of the writer, that a common etiology often exists for both.

Ignorance still shrouds in its mists much of the pathology and pathogenesis of rheumatism, but its nature has been sufficiently elucidated to justify its being known no longer as a disease characterized by arthritic and cardiac symptoms alone.

The hydra-headed nature of the rheumatic condition in adolescence has recently been called to the attention of the profession in a leading article of the *New York Medical Journal*.\*

Chorea, pericarditis, pleurisy, the fibrous nodules which suddenly appear along the margins of the patella, elbow joints, clavicles, and vertebrae, tonsillitis, erythema, and even meningitis,† are among its manifestations in children. Cheadle,‡ in an exhaustive treatise on rheumatism, relates several instances in which three, four, or more of the manifestations coexisted.¶

While in the adult arthritic symptoms are more regularly encountered, it seems probable that other conditions of a chronic nature are yet to be recognized as well-known complements of the rheumatic diathesis.

Howard,|| writing on rheumatism, has noted the occurrence of an acute pharyngitis, characterized by extreme hyperæmia and hyperæsthesia, as a complication or a manifestation of a rheumatic crisis.

When we consider the manifold manifestations, both acute and chronic, of rheumatism, it does not seem improbable that the rheumatic virus should have an irritative action upon the glandular structures of the throat such as would result in the chronic changes noted. It is, perhaps, suggestive of need of fuller investigation that the opinion of authorities varies so considerably as regards the etiology of these chronic disorders. This is especially so of chronic post-nasal or nasopharyngeal catarrh.

It is as yet *sub judice* as to how much its extreme preva-

lence may depend upon the condition known as the rheumatic diathesis or chronic rheumatic poisoning.

Sir Morell Mackenzie makes only a passing reference to rheumatism as an ætiological factor in nasopharyngeal catarrh and glandular pharyngitis. In the last edition of his work, while conceding the possibility that a nasopharyngeal catarrh may be inherited, he makes his chief references to atmospheric conditions, and especially to dust, as its immediate ætiologic factors.\*

Beverly Robinson, who is probably the most widely quoted American author on the etiology of this affection, has suggested that a special constitutional tendency to the disorder exists in the individual.† In discussing follicular disease of the nasopharynx, he states his failure to discover any atmospheric cause for post-nasal catarrh. He submits that "an acute or chronic coryza is without doubt a predisposing and at times a proximate and partially efficient cause of its becoming manifest. But, in order to effect the ingrafting of post-nasal catarrh, a certain diathetic condition is essential."‡

Bosworth considers the chief factors in the etiology of nasopharyngeal catarrh to be dependent upon and due to a diseased condition of the nasal passages.§

Lennox Browne,|| as quoted by Mackenzie, considers "that the diathesis of patients suffering from catarrh of the nasopharynx is 'generally of a scrofulous character.'"

Writers of another class than the above-quoted authorities broadly assign to the "irritating qualities of the air," the "trying climate," and to "colds" the entire responsibility of the causation of post-nasal catarrh. The immediate causative influence of the factors of atmospheric phenomena is undoubtedly great; but the logical conclusion of the belief that these are the sole factors in the production of a chronic inflammation of the nasopharynx is that all those under similar circumstances of climate and of occupation are affected with catarrh. The other alternative is to assume the position of the writer quoted above—that "a special constitutional tendency exists in the individual." This indeed seems to be the only ground on which to explain the diversity of circumstances as regards territory, climate, and occupation under which this disorder exists. Of the particular constitutional diatheses which predispose to it, the rheumatic diathesis, in the opinion of the writer, is one of the most common.

It is in line with the writer's experience to believe that the clinical study of post-nasal catarrh, however, does not often lead one to ascribe its etiology to the rheumatic diathesis. This is mainly due to the fact that the latter does not always manifest its presence by giving rise to arthritic symptoms. The rarity with which joint and muscular pains coexist simultaneously with post-nasal catarrh is probably responsible for the small amount of attention which has been given rheumatism as an ætiologic factor in

\* December 17, 1892.

† Senator in Ziemssen's *Handbuch*, viii, xvi.

‡ W. B. Cheadle: *The Rheumatism of Childhood*. London: Smith, Elder, & Co.

§ *Cyclopædia of Diseases of Children*, vol. i, p. 897, Philadelphia.

|| *American System of Medicine*, vol. ii, p. 42.

\* *Diseases of the Throat and Nose*, vol. ii, p. 337, New York.

† *Nasal Catarrh*, New York, 1889.

‡ *Op. cit.*, p. 145.

§ *Diseases of the Nose and Throat*, vol. i, p. 519, New York, 1889.

|| *The Throat and its Diseases*, London, 1875, p. 463.

this disorder. The clinical study which has been given it from the rheumatic point of view makes it probable that it often manifests itself alone by giving rise only to a sub-acute or chronic inflammation of the glandular tissue of the pharynx. In these cases a history of a previous attack of rheumatism or of a rheumatic family history is often the only guide.

On the other hand, the investigations of the writer seem to indicate that a post-nasal catarrh is an exceedingly common accompaniment of the forms of rheumatism characterized by arthritic symptoms. In only five of the fifty cases examined, which varied in age from eight to sixty-three years, was there an absence of the symptoms of well-marked tonsillar or pharyngeal affection.

The cases presenting arthritic symptoms of rheumatism, for which alone it should be remembered the patients applied for relief, included almost every variety of the chronic and subacute forms.

As it has been said, the ages of the patients ranged from eight to sixty-three years. The average age was thirty-six years and a half. Twenty-three were males, twenty-seven females.

Pain in the joints was the most prominent symptom complained of in forty of these cases. In the remainder stiffness and swelling constituted the most prominent symptoms. The length of time during which arthritic symptoms had been present varied from the recent rheumatic crisis of a day to forty years. The usual variety and irregularity regarding the particular joints affected were presented. In some cases a single joint was involved; in other cases the number was plural.

The comparative duration of the arthritic and the throat symptoms varied. In the majority the arthritic symptoms, as we should expect in a series of "rheumatic" patients, were of longer duration.

As was stated, only five of the cases were exempt from either tonsillar hypertrophy or a catarrhal condition of the nasopharynx; some presented both conditions.

To be exact, forty cases presented symptoms of well-marked nasopharyngeal catarrh. Almost without exception, the type of this catarrh was that known as the hypertrophic form.

Of the three patients under thirteen years of age, in all of whom rheumatism was a family inheritance, adenoids of the pharynx existed.

Incidentally, laryngitis was present in three cases; elongation of the uvula in two; chronic catarrh of the middle ear in three.

In the light of the manifold manifestations of rheumatism, which later investigators of the subject have shown to exist, especially in the case of children, it would seem that attempts at correcting the tendency to a rheumatic diathesis might well be exerted.

Such an attempt would involve the correcting of many prevailing abuses which seem the natural results of our boasted civilization. Improper food and overfeeding, insufficiency of exercise, and improper clothing would figure largely in the reform.

The clogging of the system with the products of imper-

fect oxidation is doubtless one of the most important factors in the establishment of such a diathesis.

The results of the investigations in regard to the effects upon the throat of the condition under discussion have led the writer to the conclusion that the etiology of not a small proportion of chronic nasopharyngeal and tonsillar disease is due to the pathological condition at present vaguely termed "the rheumatic diathesis."

515 CLINTON AVENUE.

## A PRELIMINARY COMMUNICATION CONCERNING THE ANTISEPTIC VALUE OF PHENACOLL HYDROCHLORIDE.

By CARL BECK, M. D.,

INSTRUCTOR IN CLINICAL SURGERY  
AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL;  
VISITING SURGEON TO ST. MARK'S HOSPITAL AND THE GERMAN POLIKLINIK.

BEARING in mind the derivation of the well-known drugs—acetanilide, phenacetine, and phenocoll—it ought to appear natural, from a theoretical standpoint, that these descendants of a typical antiseptic should have preserved their characteristic germicidal qualities.

Led by this consideration, I determined last summer to examine these drugs in reference to their antiseptic value from a practical standpoint by applying them on all kinds of wounds and ulcers in the shape of powders, solutions, ointments, and gauzes in private practice, as well as at St. Mark's Hospital and the German Poliklinik with the assistance of Dr. Stiebeling, Dr. Heyman, and Dr. Händel.

My experiments have shown that all the drugs mentioned above possess a well-marked antiseptic power.

Acetanilide keeps a fresh, clean, or well-granulating wound in a good condition, but is of little influence upon infected wounds or upon ulcers. It does not seem to produce irritation or eczema, and may rank the same as boric acid. (Experience of seven cases.)

Phenacetine is undoubtedly more powerful, and not only keeps fresh or well-granulating wounds in a good state, but improves their appearance. A ten-per-cent. gauze did not have any odor three days after it had been taken away from an ulcer of the leg. Poisonous effects, irritation, or eczema were never noticed. So far as its antiseptic value is concerned, it appears to me that it takes its place between boric acid and iodol. (Experience of thirteen cases.)

But I soon found that phenocoll far surpassed both, wherefore for the last three months I have experimented with this only in the form of—

1. Pure powder.
2. Five-per-cent. watery solution.
3. Ten- and fifteen-per-cent. alcoholic solution.
4. Ten- and twenty-per-cent. gauze.
5. Ten- and twenty-per-cent. ointment (vaseline and lanolin).

Originally I only used the powder by dusting it over the wound surface and covering the same with sterilized gauze or moss. It was employed in lacerated wounds (five cases), suppurating glands of the neck (three cases), pana-



ritium (three cases), bubo inguinalis (two cases), badly granulating ulcers of the leg (two cases), suppurative mastitis (one case), amputation of three toes (one case), burn of the second degree embracing the dorsal surface of the foot and anterior part of the leg (one case).

All these sores had been granulating well and, with the exception of one amputation case, are cured to-day.

No irritation of the integument or any general symptoms which could be referred to the action of the drug were observed. When I found that I could do just as well with the ten-per-cent. gauze I dropped the powder, and for the last two months, with few exceptions, have used the gauze only.

The same good effects were obtained by covering the granulating surfaces with a thin layer of the gauze, which was protected, as a rule, by a piece of sterilized moss. The dressings were usually changed every third day, as the secretion was scanty. The cases thus treated were:

Lacerated wounds caused by knives, pieces of glass, splinters of wood, or other injury (fourteen cases); extirpation of tubercular glands of the neck (packing the cavity with the gauze—eight cases); furuncle of the neck (crucial incision—two cases); caries sterni (chiseling and packing—one case); suppurative mastitis (broad incisions and packing—five cases); partial resection of a tubercular elbow joint (packing—one case); panaritium (eleven cases); amputation of the finger (gangrene after bathing in pure carbolic acid—open treatment and packing); bubo inguinalis (extirpation of glands—four cases); resection of tubercular hip joint (partial union, cavity packed—three cases); total resection of tubercular ankle joint (two cases); resection of astragalus for extreme equino-varus (failure of union by first intention, open treatment thereafter); amputation of the big toe for caries (open treatment); amputation of three toes for caries (previously treated with powder); phlegmon of different parts of the body (free incision, scraping, and packing—seventeen cases); ulcers of the leg (necrosed surface scraped first, then a thin layer of phenocoll gauze and tight dressing applied over it (three cases).

All these cases are either cured at the present time or are in an entirely satisfactory condition. The healing process does not differ from that observed during the use of iodoform. Every patient's urine was examined repeatedly without anything abnormal being detected, and no irritation took place. Two cases—viz., one amputation of three toes and one phlegmon of hand, mentioned above—had formerly been treated by iodoform and had extensive eczema, while phenocoll did not irritate at all.

The five-per-cent. watery solution was successfully applied as a wet application in one case of dermatitis and in one case of erysipelas (arising from a lacerated wound on the anterior part of the leg). The same solution was used with apparent success in three cases of recent gonorrhœa and four cases of leucorrhœa.

The ten-per-cent. alcoholic solution was injected into the joints in two cases of coxitis and three cases of tubercular (?) inflammation of the ankle joint, without any irritation. So far as the final result is concerned I am still in doubt.

The same injection was made into a carcinoma mammae (relapse in and around the scar after amputation a year ago), and it has undoubtedly produced a decrease of size and painfulness in the cancerous tissue, so that further investigations seem certainly indicated.

The injection of a watery and especially of an alcoholic solution was always followed by a slight burning sensation, which never lasted longer than about a minute.

The twenty-per-cent. ointment (preferably made with lanolin) was used in one case of ulcer of the leg and two cases of burns of the second degree. The granulations were of a good character, but the healing process seemed to take longer than it did under the use of the gauze.

So far, it seems to be evident from my experiments that phenocoll hydrochloride is probably as valuable an antiseptic as iodoform, and stronger than dermatol, aristol, iodol, pyoctanin, europen, etc.

Furthermore, it probably surpasses iodoform because: 1, it is odorless; 2, it dissolves easily; 3, it does not produce eczema; 4, it is not contraindicated in kidney disease; 5, on account of its non-poisonous effects it can be applied to very extended surfaces.

As a very small amount of the drug fulfills its purpose, the expense is small.

187 SECOND AVENUE.

## THE NON-OPERATIVE TREATMENT OF CROSSED EYES.\*

By EDWARD J. BERNSTEIN, M. D.,

BALTIMORE.

It has long been apparent to all thinking ophthalmologists that the practice of operating on every case of squint not due to paralyses or like causes, still upheld and practiced by many eye surgeons, was radically wrong when applied to a very large percentage of their cases. In the light of modern thought it must be characterized as a barbarity, as fallacious in theory—if theory it had at all—as it was pernicious in practice.

My first rude awakening from my earliest teachings in this regard was the practice of "let alone" adopted in Vienna, in Munich, and, in fact, in all the German schools. It is not altogether a "let-alone policy" either, but relatively so—that is to say, "inasmuch as squint frequently disappears by itself, it is advisable to wait till the children are over ten years of age. Should one have operated earlier upon such a case as would have disappeared if let alone, strabismus divergens would supervene. In order not to lose the time intervening between first noticing squint and the tenth year, it is advisable to cover the nonsquinting eye frequently, and force the patient to make use of the bad eye in order to preserve its usefulness, and thereby prevent loss of visual acuity through disuse. Besides this, we forbid the playing with small playthings, so as to cause the least possible straining of accommodation, and, when able, to wear the proper convex glass. . . . In all cases of diver-

\* Read before the Baltimore Medical and Surgical Society, February 23, 1893.

gent squint operation is the *only* cure" (Fuchs, *Lehrbuch der Augenheilkunde*, p. 622, Germ. ed., 1892).

This is the theory. In practice I doubt if I saw any child wearing convex glasses for its convergent squint all the time I was in Vienna. At any rate, I shall be safe in saying that I saw no attempt made to correct the refraction *before* the school age, and the vast majority of cases were allowed to run on till the patient reached the operative age.

At Moorfields every patient over three years of age was tested and proper glasses were ordered, with what result I shall relate farther on.

When one waits for the school age before giving glasses, an amount of argamblyopia\* has already made its appearance. And if we wait for the tenth year, rarely shall we find more than  $\frac{5}{6}$  vision left.

A squinting eye is usually more annoying to the friends than to the patient, until some accident happens to the good or "steady" eye, when he is made to feel his helplessness. Then he is a burden to himself and the community at large, and a brilliant reflection on the progress of surgery.

I am aware that the theory of hypermetropia and myopia, as applied respectively to convergent and to divergent strabismus, is not the only one. I do not believe either condition alone would develop squint, but, when associated with an insufficiency of one of the recti, it makes its appearance.

We all know of cases innumerable where either insufficiency alone, or hypermetropia or myopia alone, exists, but no squint.

Briefly told, the most important of the other theories are:

1. "That the spasm of accommodation in the better eye produces squint in the defective one" (Donders, Landolt). This is to explain which of the two *bad* eyes shall be the squinting one.

2. "Strabismus is caused by insufficiency (of either rectus muscle). . . . Manifestation of latent insufficiency or its transition into squint is caused by any factor which reduces the worth of binocular vision, or, in other words, makes it less agreeable. We thus see how it comes that one who has only had insufficiency develops manifest squint after a macula corneæ" (Fuchs, *Lehrb. der Augenh.*, Germ. ed., 1892, p. 619).

3. "Opacities in the refractive media, especially in the cornea and lens."

4. "Intra-ocular diseases." Total loss of sight, readily develop squint.

5. "There can be little doubt that the tendency to the persistence of a definite state of innervation, which asserts itself as a factor in the production of the latent position, is also a factor, if not the only factor, in the causation of the permanent element of every convergent squint, whatever the state of refraction," says Dr. George A. Berry in his article in the *Helmholtzsche Zeitschrift*.

6. The view that "permanent convergent strabismus is maintained by the constant innervation to convergence," being held by H. Grub.

7. Stilling says: "Whether convergent or divergent, it is nothing but the assumption by the eyes of their position of rest on giving up binocular vision."

8. Anatomical peculiarities of shape in the orbit.

9. Malpositions of the center of the cornea, etc., are also among the numerous assignable causes of this deformity.

10. In a personal letter from Dr. H. H. Seabrook, of New York, he gives his opinion that "in a small but important class of cases, the macular hypermetropia being higher than eccentrically in the position of internal squint, most of the rays of light pass through the axis of least hypermetropia, and binocular vision may be thus acquired in infancy." He further adds that "this satisfies my ophthalmological friends better than it does myself."

It must be evident to all that the state of refraction is the primal cause. This does not by any means preclude the fact that these above-cited theories are, of course, concerned to a greater or less degree in many cases, and may be the *only* cause in some few.

The treatment of crossed eyes which I shall here explain is especially adapted to young children—as young as three or four years. It is at this age, when the faculties are developing so rapidly, that the greatest good is to be awaited from an expectant plan of treatment. It is, however, just as applicable to children of maturer age, though such brilliant results can not *then* be expected, in whom the trouble had not been corrected, with a view to save what vision was left in the bad eye and to try and improve on that. The method is as follows: The total refractive error is determined under complete atropine dilatation by the direct ophthalmoscopic image and skiascopy. The proper correcting glass being determined upon—which varies from the full correction, allowance being made for the mydiatic and skiascopy, in the youngest children to somewhat less in the older ones—they are directed to wear these spectacles constantly. The eyes are kept slightly under the influence of a half-per-cent. solution of atropine (a drop being instilled into the eyes once or twice a week), in order to prevent the stronger efforts of accommodation, and the parents are directed to bind up the good eye for at least half an hour each day when the child is at play in the house.

Necessarily this use of atropine is confined to children younger than the school age. In the older ones the dissection is to use the bad eye—the good one being bandaged—for increasing periods of time in reading as small type as possible, and this to be kept up so long as pain does not prevent. The Landolt plan of "stereoscopic fusion" is also added, the eyes to be thus exercised daily.

In a recent article in the Philadelphia *Medical News*, by Dr. George M. Gould, on Amblyopiatrics, the views there set forth are so fully in accord with my own experience that, inasmuch as it has considerable bearing on the subject in hand, I quote the following: "The functionalization of argamblyopic eyes consists, of course, in three things: 1. Correction of the ametropia. 2. The reinstatement of muscular balance if unbalance exists. 3. Exercise."

As to the correction of the ametropia there are a number of peculiarities and problems. These each refraction-

\* Argamblyopia = defective sight from disuse.—Dr. G. M. Gould.

ist will overcome and answer according to his teaching, his habit, and his intelligence. Assuredly no hard and fast rule will suffice, nor can such a rule be even approximately formulated. Each case will be a study in itself, requiring the most accurate discrimination of judgment and the finest delicacy of testing. In an eye of which the neurologic elements and the cerebral centers are certainly weakened and partially atrophied, the failure to hit exactly the right kind, degree, or precise proportion of help required, forebodes at once to failure. The very breath of life in such an eye hangs trembling in the balance between endeavor and renunciation. A shadow of overcorrection or undercorrection, a misplaced axis of astigmatism, a misplaced or maladjusted spectacle, a touch at the wrong place instead of the least wee bit of help at the right place—anything except the right thing—smothers the little remaining power of recuperation, and proves a tiny load too great for the tiny forces to lift.

We are here dealing with infinitesimals, and the keenest and swiftest perception will win where a less subtle discrimination will fail.

It is evident that such eyes must be nursed and encouraged, as it were, into convalescence.

Would it not be a noble triumph if we could be sure of rescuing such defective eyes from practical blindness? Dr. Gould shows in a number of instances the results he has already attained in this direction, and the first three cases here cited show the somewhat similar results.

If *this* be a gain, how much greater would be the gain if we can *prevent* amblyopia from occurring and at the same time correct an ugly deformity? This is what I hope for by the application of the foregoing.

Cases I to VI are from my private practice. The rest are related to me by my friend and coworker, Dr. Robertson McIntosh, assistant in Moorfields Eye Hospital, London, and are taken, in answer to a request of mine, from the daily run of cases at that institution. They are fair representatives of the work done there.

CASE I.—M. G., aged thirty-two, bookkeeper.

*July 28th.*—Complains of asthenopia and poor sight, and that he can only see at all "by cocking his head" so as to bring the left eye in better relation with the page. Anamnesis shows that in early youth he squinted with right eye; does not remember whether in convergence or divergence.

V. R. E.,  $\frac{2}{36}$  — 5.75 D. V. L. E.,  $\frac{3}{36}$  — 3.25 D.  
 $\begin{array}{c} \text{+} \\ \text{+} \end{array}$  — 3.  $\begin{array}{c} \text{+} \\ \text{+} \end{array}$  — 2 D.

Ordered R. E. — 3 D. sph.  $\bigcirc$  — 2.75 D. cyl. ax. hor.  $\frac{5}{36}$  L. E. — 2 D. sph.  $\bigcirc$  — 1.25 D. cyl. ax. 80° temp.  $\frac{5}{36}$ . To wear glasses continually and use right eye as much as possible, covering the left with a blind, attempting to read with right for increasing periods of time, and use the stereoscope.

*November 30th.*—Asthenopia disappeared. V. R. E.,  $\frac{3}{36}$ ; V. L. E.,  $\frac{6}{36}$ .

CASE II.—August 12, John R., aged eighteen; asthenopia and convergent strabismus of 15°. V. R. E.,  $\frac{2}{36}$ ; V. L. E.,  $\frac{3}{36}$ ?

Has been wearing right-eye plane glass, L. + 2 D. sph., which helped him somewhat, but not completely, and no effect on the crossed eye.

Skiascopy under homatropine (castor-oil solution):

R. E.  $\begin{array}{c} \text{+} 6 \text{ D.} \\ \text{+} 7 \text{ D.} \end{array}$  L. E.  $\begin{array}{c} \text{+} 5 \text{ D.} \\ \text{+} 6 \text{ D.} \end{array}$

Ophthalmoscope: Fundi normal, deeply pigmented and shot-silk retina.

Ordered R. E. + 4.5 D.  $\bigcirc$  + 1 D. cyl. ax. vert.  $\frac{5}{36}$ ; L. E. + 4 D.  $\bigcirc$  + 1 D. cyl. ax. vert.  $\frac{5}{36}$  full; and same treatment as above in Case I.

*January 3d.*—V. R. E.,  $\frac{5}{36}$ ? No squint when he wears the glasses, but appears as soon as he removes them.

This patient does not keep up the exercise ordered, being satisfied with this result.

CASE III.—August 26th. Miss B., aged twenty-four. Asthenopia, argamblyopia, anemia. Anamnesis brings forth fact that she had convergent squint of left eye in early childhood. Very nervous temperament. V. R. E.,  $\frac{5}{36}$ ? V. L. E.,  $\frac{8}{36}$ . Skiascope under homatropine (castor-oil sol.): R. E., horizontal meridian, + 2.25; vert. do. + 2 D. sph.; L. E., meridian of least refractive error, + 3.5 D., its R. A., + 4 D. Fundi normal.

Ordered R. E. + 1 D. sph.  $\bigcirc$  + 0.25 D. cyl. ax. vert.  $\frac{5}{36}$ ; L. E. + 3 D. sph.  $\frac{5}{36}$ ? and Bland's pills, one three times a day. Ocular gymnastics (covering good eye and stereoscopic exercise).

*January 28th.*—V. R. E.,  $\frac{5}{36}$ ; V. L. E.,  $\frac{3}{36}$ . No asthenopia.

CASE IV.—George E. H., aged nine, August 30th, has had convergent squint since five years and a half old. It is said to have appeared suddenly on first going to school. At present has convergent squint of 45° in right eye. V. R. E.,  $\frac{3}{36}$ ; L. E.,  $\frac{3}{36}$ . Ordered atropine sulph. (0.10 to 10.0).

*September 8th.*—Squint even more marked than before. Skiascopy: R. E. V.,  $\frac{1}{36}$ , horizontal meridian, + 7.5 D. sph.; vertical meridian, + 3.5 D. L. E. V.,  $\frac{3}{36}$ ? horizontal meridian, + 4.5 D. sph.; vertical meridian, + 3.5 D.

Ordered R. E. + 2.5 D. sph.  $\bigcirc$  + 4 D. cyl. vert. axis,  $\frac{5}{36}$ ; L. E. + 2.5 D. sph.  $\bigcirc$  + 1 D. cyl. vert. axis,  $\frac{5}{36}$ ?

Ophthalmoscope shows fundi normal, with marked shot-silk retina. With glasses, squint fully 10° less. Ordered gymnastics. This case has not reported lately, but has repeatedly promised to do so. Said to be improved.

CASE V.—Isidor B., aged four; parents have noticed an occasional squint since two years and a half of age. Now has an alternating convergent squint of 20°.

*September 1st.*—Ordered atropine solution (0.10 to 10.0), twice daily.

*7th.*—Skiascopic examination: R. E., horizontal meridian, + 2.75 D. sph.; vertical meridian, + 3.25 D. L. E., horizontal meridian, + 2.50 D. sph.; vertical meridian, + 3 D. sph. Fundi normal; shot-silk retina; macular reflex normal.

Ordered + 2.50 D. sph. both eyes, and to be kept under influences of atropine solution, 0.05 to 10.0, a drop in each eye once or twice a week, the good eye (apparently the left eye) to be bound up for half an hour each day and all play with right eye.

*December 26th.*—Absolutely no squint to be seen while wearing glasses. The child broke its glasses and had to go without them for three days. For the first day or so the squint remained unnoticeable, but returned before he got his glasses, when it disappeared as soon as he put them on. I ordered the new pair to be decentered 5 mm.

CASE VI.—Joseph M., aged nine; marked convergent squint of over 50°. V. R. E.,  $\frac{8}{36}$ ; V. L. E.,  $\frac{5}{36}$ ?

*October 30th.*—As measured by Hirschberg's method, the image of the candle flame falls 2.5 mm. to external-canthus side of right cornea. Ordered one-per-cent. atropine solution twice daily.

*November 8th.*—Skiascopy: R. E., + 3 D. sph. in vertical meridian, + 3.5 in horizontal; L. E., + 2.5 D. sph. in horizontal meridian, + 3.25 in vertical.

Ordered R. E. + 2.75 D. sph.  $\bigcirc$  + 0.50 cyl. axis, vertical,



$\frac{3}{8}$  in. L. E. + 1.75 D. sph.  $\odot$  + 0.50 D. cyl. axis, horizontal,  $\frac{3}{8}$  in. Fundi normal; very marked shot-silk retina. Ordered gymnastics, etc.

December 20th.—Squint very much less—about  $35^\circ$ —and V. R. E.  $\frac{3}{8}$  in. This case, I think, will eventually have to be operated on, but in the mean time he is gaining sight in his bad eye, and will probably save himself a double tenotomy. Possibly a division of the right internal rectus will suffice.

CASE VII.—M. D., aged seven, was seen in 1890 with divergent squint.

Skiascopy:

R. E.  $\begin{array}{c} -8 \text{ D.} \\ + \\ -6 \text{ D.} \end{array}$  L. E.  $\begin{array}{c} -8 \text{ D.} \\ + \\ -5.5 \text{ D.} \end{array}$

Ordered — 6 D. spherics for constant use.

November 17, 1892.—No divergence.

CASE VIII.—R. D., aged eight, came on April 7, 1892, with slight convergent strabismus. Complaints of diplopia for both near and far and much headache.

V. R. E.,  $\frac{2}{3}$  in, man. H. + 1 D. =  $\frac{6}{8}$ ; V. L. E.,  $\frac{2}{3}$  in, man. H. + 1 D. =  $\frac{5}{8}$ .

Skiascopy showed + 1 D. sph. in each meridian in both eyes.

Ordered + 1 D. right and left.

November 19, 1892.—No diplopia; eyes straight.

CASE IX.—May 1, 1890. A. H., aged four; convergent strabismus. Skiascopy showed + 3.5 D. in each meridian in both eyes.

R. E.  $\begin{array}{c} +3.5. \\ + \\ +3.5. \end{array}$  L. E.  $\begin{array}{c} +3.5 \text{ D.} \\ + \\ +3.5 \text{ D.} \end{array}$

Ordered + 2.25 D. spheres, round glasses, for constant use.

November 22, 1892.—No convergence now with glasses.

CASE X.—G. A., aged four, came October 3, 1889, with history of convergent strabismus in right eye of one year's standing. Now has squint of  $20^\circ$ .

Skiascopy:

R. E.  $\begin{array}{c} +5 \text{ D.} \\ + \\ +5 \text{ D.} \end{array}$  L. E.  $\begin{array}{c} +4.5 \text{ D.} \\ + \\ +4.5 \text{ D.} \end{array}$

Ordered + 4 D. right and left.

November 24, 1892.—No convergence now with glasses.

CASE XI.—G. I., aged five, came in 1888 with right convergent strabismus  $10^\circ$ . V. R. E.,  $\frac{4}{5}$  in; not improved; V. L. E.,  $\frac{3}{4}$  in; + 3.5 D.  $\frac{5}{8}$ .

Skiascopy:

R. E.  $\begin{array}{c} +7.5 \text{ D.} \\ + \\ +9.5 \text{ D.} \end{array}$  L. E.  $\begin{array}{c} +4 \text{ D.} \\ + \\ +4.5 \text{ D.} \end{array}$

Ordered R. E. + 5 D. sph.  $\odot$  + 2 D. cyl. ax. V.; L. E. + 4 D.

November 25, 1892.—No strabismus now.

CASE XII.—Miss G. Private case of Dr. McIntosh. Has divergent squint:

V. R. and L. <  $\frac{6}{8}$ .

Skiascopy:

R. E.  $\begin{array}{c} -2 \text{ D. sph.} \\ + \\ +4 \text{ D.} \end{array}$  L. E.  $\begin{array}{c} -2 \text{ D.} \\ + \\ +4 \text{ D.} \end{array}$

Ordered + 2 D. sph.  $\odot$  + 6 D. cyl., axis horizontal. Seen fourteen days later; sees  $\frac{3}{4}$  in or so and no divergence when glasses are worn.

In conclusion, let me add that I am well aware that I have originated nothing; but I am equally as well aware that the practice of the above, in this country at least, is but seldom applied, if at all; that when squint is even of high degree or of long duration, much can be done by the proper correction of the ametropia. It may, no doubt, when tried before operation is decided upon, reduce the number of cases which ordinarily require several operations,

and even then be not thoroughly corrected without the correction of their ametropia to maintain the result.

Is not this, then, a more potent reason for following the plan of giving the correcting glass in advance in all cases of squint to see what action will result therefrom?

I have not attempted to correct the muscular imbalance by prisms in any case as yet; when vision so far improves as to make binocular vision unpleasant by confusion of images, I shall, no doubt.

218 W. FRANKLIN STREET, BALTIMORE.

## SCLEREMA NEONATORUM.

By J. LINDSAY PORTEOUS, M. D., F. R. C. S. Ed.

SOME time ago I had the good fortune to have a case of this rare disease brought under my observation. When I first saw the infant it was four days old. On the second day after its birth the peculiar condition of the skin drew the attention of a neighbor. When I saw it the following appearances presented themselves: The legs, feet, arms, hands, back of shoulders, and upper part of chest had the feeling of India rubber stretched over a frame. The color of the skin varied from a deep purple to a light pink. It cried feebly, and every few seconds stretched its body to its full extent, as if struggling for breath, or as if it felt stiff all over. The pulse was 120 beats a minute, and the temperature  $97^\circ$ . I carefully examined the chest, but found neither pulmonic nor cardiac abnormal sounds. The bowels had moved shortly after birth, but not again. The constipation was most obstinate. Castor oil had been administered three times. Suppositories of soap and soap-and-oil enemata also proved ineffectual. I ordered hot-water baths and friction of the whole surface of the body. It was enveloped in cotton wool, and a temperature of about  $75^\circ$  was maintained in the room. I made several punctures in the skin with the view of releasing any fluid that might be there and thus relieving the tension, but only a very little blood and yellow fluid escaped. On the sixth day the temperature fell to  $87^\circ$ , and the infant died that night. Such were the symptoms which I observed.

According to Valleix, the pulse generally falls to about 60 in the minute. In this case I never found it below 110. Ellis, in his *Diseases of Children*, says some authors consider this disease to be caused by lobular pneumonia or atelectasis pulmonum, and that after a time cough comes on and continues throughout. Now, in this case there was very little cough, which entirely disappeared on the fifth day after birth, or the third day after the disease was noticed. I do not find in any account of sclerema that constipation is given as a symptom. I am inclined to believe that the disease is purely one of the cellular tissue, and has nothing whatever to do with the lungs. If there is lobular pneumonia or atelectasis in an infant suffering from this malady, it is merely a coincidence and can not be held responsible for this purely indurated condition of the cellular tissue. The name seems to me an unfortunate one. It is derived from the Greek word *σκληρός*, meaning "hard." Now, from my limited experience, I should say the skin was not hard, but, as I have already stated, like stretched rubber. It has been regarded by some as a form of ichthyosis, but it certainly has no resemblance to any of the numerous forms of that disease that I have seen. It must not

be confounded with ichthyosis cornea, or sclerema of some French writers.

The cause of this rare disease is very obscure or, I may say, is unknown. Although it has been noticed in connection with congenital syphilis, still there is no proof that it is caused by that disease. In the case I have mentioned I could get no history of syphilis in either parent. The microscope throws little light on the subject. The cellular tissue contains a yellowish, gelatinous, or stearin-like deposit. Scleroderma of adults differs from it, as in the former there is increased fibrous tissue, which the latter has not.

As to treatment, nothing seems of any avail; but by some, who hold that syphilis is the cause, treatment for that disease is recommended.

## A NOTE ON THE USE OF TRIONAL AS A HYPNOTIC.

BY WILLIAM C. KRAUSS, M.D.,  
BUFFALO, N. Y.

PERHAPS NO ONE class of drugs attracts the attention of the physician more than the hypnotics. This is due partly to the obstinacy and inveteracy of the symptom insomnia, and partly to the inefficacy of many of the drugs ordinarily prescribed for this condition.

During the past few months a number of contributions have appeared in medical literature laudatory of the preparation called trional as a hypnotic, especially in nervous and mental disorders. Trional is described as a powder consisting of tablets of a melting point of 76° C., readily soluble in alcohol and ether, but less soluble in water, requiring three hundred and twenty parts of water at ordinary temperature. Trional belongs to the same chemical family as sulphonal and tetronal, but containing three ethyl groups instead of two as in sulphonal, and four as in tetronal. Its chemical composition is a diethyl sulfon methylmethan, and was first described by Kast and Baumann. The drug was given in fifteen-grain to twenty-five-grain doses, fifteen to forty-five minutes before retiring; and in those cases in which pure insomnia existed, sleep followed in from fifteen minutes to an hour and a half after administration. Trional differs from sulphonal in that the latter takes effect later and has an accumulative action; from tetronal in that tetronal takes effect quicker, but the effect wears off sooner.

Barth and Rumpel,\* who appear to have been the first ones to use trional, were very successful in their experiments in the Hamburg General Hospital, and consequently recommended it very highly as a hypnotic. Schultze, of Bonn (*Therap. Monatshefte*, Oct., 1891), used it to good advantage in treating seventy-six cases of various mental diseases. Garnier,† of Dijon, Schaefer,‡ of Jena, and Boettiger,\* of Halle, were equally successful in its employment. The latter employed it in cases of uncomplicated agrypnia, in cases of painful nervous diseases, in mental

diseases in which insomnia was complicated by slight psychical disturbances, in cases of marked excitement with delirium, etc. In all, seventy-five patients were under treatment, and in seven only were the effects negative, while in twenty cases sleep of short duration was produced.

Schultze found trional active in seventy-five per cent. of the single doses; Schaefer, in eighty-six per cent. In Boettiger's cases, excluding those in whom there existed pain along with the insomnia, fifty-eight cases remain, two of which were not influenced by the drug.

Brie,\* of Bonn, had similar favorable results, as his subjoined report will indicate. He used it chiefly in mental diseases, dividing his cases into four classes. The first class included mild forms of melancholia and hypochondria; eleven cases were under treatment, and in all seven to nine hours' sleep followed. The second class included four cases of agitated melancholia; these cases had been previously treated with opium, chloral, etc., without any favorable results. The first two cases were given thirty grains of trional with happy effect; the third patient was obliged to take forty grains, and the fourth patient was given fifteen grains.

The third group included the maniacal cases and paralytics; ten cases were treated with but one failure, and that because of stomach irritation, necessitating abandonment of the drug. In these cases other hypnotics had been tried—such as chloral, paraldehyde, sulphonal, and tetronal—but the results were not as satisfactory.

The fourth class included paranoia and the hallucinations; eight patients were treated, and all were successful. Besides these mental diseases, in insomnia due to overwork and worry, excluding pain, trional gave refreshing sleep.

My results with trional have been very encouraging so far as I have gone, although I have used it in only eight- to ten-grain doses, and have not been obliged to repeat the dose. The cases were all of nervous diseases—such as exophthalmic goitre, epilepsy, hysteria, neurasthenia, trifacial and intercostal neuralgia, prurigo, nervous disturbances during the menopause, vertigo, etc. In all of these cases, fifteen in number, except in those where there was peripheral nerve irritation, I obtained gratifying results. In the patients suffering from trifacial and intercostal neuralgia, trional, combined with acetanilide (eight to ten grains of each), was rewarded with good, quiet sleep. In but one case was a complete failure recorded, and that the case of prurigo; here the trional seemed to exert just an opposite effect.

In none of these cases were disagreeable symptoms noted, although in two of them other hypnotics had been abandoned on account of their irritating qualities.

From my experience, it would seem that trional is a fairly good hypnotic; that it produces no disagreeable after-effects; that, combined with a simple anodyne—such as acetanilide, etc.—it may be used in the insomnia of painful nervous disorders; that its only apparent objection is that its producers have seen fit to have it patented in the United States, thus making its scientific, humane importance secondary to the commercial.

\* *Deutsche medicinische Wochenschrift*, 1890, No. 32.

† *Progr. méd.*, Dec. 3, 1892.

‡ *Berliner klinische Wochenschrift*, 1892, No. 29.

\* *Ibid.*, No. 42.

\* *Neurologisches Centralblatt*, 1892, No. 24.

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A SUCCESSFUL OPERATION FOR SUBCLAVIAN ANEURYSM.

The case in which Mr. Charles P. Coppinger, of Dublin, was the operator, briefly mentioned in the *Journal* for April 8th, is one of the rare examples of successful operation for subclavian aneurysm. The innominate and carotid arteries were tied simultaneously. The date of the performance of the operation was the 9th of January, this year, and the place was the Mater Misericordiæ Hospital, Dublin. The patient was a man, aged fifty years. About a month ago the patient was exhibited as a "living specimen" before the Royal Academy of Medicine in Dublin, and he was probably the first person with operative occlusion of the innominate that ever stood up before a European medical audience. The report of the patient's condition at that time was favorable; his progress through the first month after the operation had been satisfactory, except that his temperament had led him to be restless and disobedient. The operation wound had healed. The temperature and pulse had been normal since the seventh day after the operation. The aneurysm had evidently grown smaller, and was without pulsation. No pain was complained of. The right arm was normal in temperature, sensibility, and motility, but there was no perceptible radial or brachial pulse on that side. The man's general health and spirits were good. His willful temper caused much trouble to his attendants, more especially as his restless attacks generally came on at night. On one occasion he himself removed the bandage from the wound in his neck. He would swing his arms about freely when so inclined, and insist from time to time on getting out of his bed and taking a chair by the fire "just for a change," as he said, when a misstep or other untoward accident might easily terminate his life and abridge a very interesting surgical history. Up to the time of the man's being shown there had been no symptom of hæmorrhage, and the operation wound was represented by a fine and almost imperceptible cicatrix. In the particular of freedom from hæmorrhages this case is believed to be unique. The one successful American case, that of Dr. A. W. Smyth, of New Orleans, was marked by repeated secondary hæmorrhages, beginning on the fifteenth day after the operation, and the patient's life was only saved by ligation of the vertebral artery on the fifty-second day.

The *Medical Press and Circular* for March 1st, from which many of the foregoing data have been taken, refers briefly to the position of the late Valentine Mott in the history of this department of arterial surgery, citing his hopeful view of the future of that operation which he was the first to perform for subclavian aneurysm. Dr. Mott said: "My hopes are not all

dampened by the hitherto repeated failures of this operation, and I fondly anticipate that the day may come when some one of my countrymen may yet be heralded as the successful operator." We believe that it was about a year before the death of Dr. Mott that the Smyth success was achieved and thus fulfilled the confident prognostic of the former surgeon. The *Press*, however, states that Smyth was in reality a fellow-countryman of Coppinger's, and only by adoption a citizen of New Orleans. The same paper gives the following as the fullest present statistics concerning this operation: Ligation of the innominate alone, fifteen times, with no recoveries; simultaneous ligation of that artery and the carotid, seven times with five deaths; the two recoveries being those of Smyth's and Coppinger's patients. The same journal emphasizes the significance of secondary hæmorrhage after this operation, as shown by the history of these twenty-two cases, from that of Mott down; for without exception, since the latter surgeon's famous case headed the list in 1818, all the patients who survived the immediate effects of the operation suffered severely from hæmorrhage, and all lost their lives by it, with the exception of Smyth's and Coppinger's patients; and in the Smyth case, as we have said above, the losses of blood were frequent; in fact, the man was so reduced by them at the end of the seventh week as to seem to be at death's door.

GROSS AND VIRCHOW.

It is not generally known that Professor Virchow was and is a great admirer of the late Dr. Gross, of Philadelphia. The *American Practitioner and News* tells of the following incident, brought to light by Dr. Lyman B. Todd, of Lexington, that illustrates the feeling of the disciple toward the teacher entertained by the modern Harvey, as the great German has been styled, for his American friend and predecessor in the field of pathology:

Several years ago Minister William Preston met Virchow for the first time at a Fourth-of-July banquet in Berlin. Mr. Preston in an after-dinner speech alluded eloquently to some of his American friends in our profession, such as Mott, Physic, McDowell, Dudley, and Gross, and to their good work for the world at large. When the speaker resumed his chair a stranger's hand was extended to him and by it his own was most warmly grasped in feeling congratulation. The stranger was Virchow, who at once sought to engage the speaker for dinner on the following day. After a delightful entertainment, Virchow invited Mr. Preston into his library, and, taking down a special volume, which showed that it had been thoroughly studied, he remarked with manifest seriousness: "To this book and to its author, more than to any others, or possibly more than to all others combined, am I indebted for the good, if any, that I have done in the world." The title of the book was *A Treatise on Pathological Anatomy*. On its fly-leaf Mr. Preston recognized a very familiar autograph—its writer and he had been for fifteen years or more fellow-townsmen at Louisville—"I am your true friend, Samuel D. Gross." Many are the autograph



volumes that have been added to the Berlin pathologist's shelves since Gross's, but not one of them has been honored with any more studious attention.

### MINOR PARAGRAPHS.

#### OLIVE OIL IN THE TREATMENT OF LEAD COLIC.

In the *Union médicale* for March 30th there is an article in which various methods of treating lead colic are summarized. Among them is that of administering a tumblerful of olive oil (rarely two tumblerfuls) daily for from four to eight days. This treatment, recommended as long ago as in 1616 by Citoi, has lately been extolled by Weill, of Lyons. It is said that from the very first day the paroxysms are overcome, and there remain only dull pains that are quite bearable and subside on the second or third day, when the constipation begins to yield. The first evacuation is generally scanty, but at the end of forty eight hours there is a veritable breaking up, and diarrhoea follows rapidly. It is immaterial whether the oil is given at the outset or not until several days have elapsed. Sometimes the first few glasses are vomited, but it is rare that the gastric intolerance lasts more than two or three days. It may happen also that, three or four hours after taking it, the patient experiences a sensation of weight in the stomach, without nausea, but this is transitory and does not interfere with the curative action of the oil. Copious stools are the signal of definitive cure not only of the colic, but also of the various nervous derangements associated with it, such as anaesthesia, cutaneous and muscular hyperaesthesia, tremor, and headache. The same is true of the retraction of the liver and the hardness of the pulse. Seldom do these phenomena persist so long as two or three days after the colic has ceased.

#### DECALCIFIED BONE BOBBINS IN INTESTINAL ANASTOMOSIS.

In the *British Medical Journal* for April 1st Mr. A. W. Mayo Robson, surgeon to the General Infirmary, Leeds, describes his method of establishing intestinal anastomosis by means of tubes or bobbins of decalcified bone. As ordinarily employed by him, the appliance is a spool-shaped tube seven eighths of an inch long, an inch and an eighth in diameter at its ends, traversed by a channel five eighths of an inch in diameter, the wall of the tube being an eighth of an inch thick, and having at each end a rim an eighth of an inch wide and the same in height. The advantages alleged for the method are: Rapidity of execution; simplicity and ease of performance, only two continuous sutures being required; the avoidance of leaving large plates in the intestine; security against leakage by the double continuous suture; the certainty of having an adequate and immediately patent opening; the avoidance of the danger of after-closure of the opening by securing continuity of mucous surfaces through the new channel; the avoidance of making incisions in the visceral walls larger than just necessary to admit the tube; and the adaptability to lateral intestinal anastomosis, lateral implantation (as in ileocolostomy), gastro-enterostomy, pylorotomy, end-to-end enterorrhaphy after enterectomy, and cholecystenterostomy. The operative procedure is illustrated by means of diagrams, and notes of two cases are included in the article.

#### LAPAROTOMY FOR TRAUMATIC EXTRAVASATION OF BILE.

At a recent meeting of the Paris Society of Surgery (*Union médicale*, April 1st) there was reported the case of a driver of a rubbish-cart who had fallen from his seat and been injured by

the wheels passing over the lower part of his chest. On the following day there was great pain in the region of the liver, together with tympanites, a small and frequent pulse, and an altered expression of the face. Bronchopneumonia supervened shortly, and the man's general condition became so grave that the surgeon, M. Michaux, although he suspected rupture of the biliary passages, hesitated to resort to operative interference. So it was not until after seventeen days, when the pneumonia had notably abated, that laparotomy was performed. About ten fluid-ounces of bile were removed from the peritoneal cavity. The peritoneum was covered with false membranes, and the intestinal adhesions were such as not to admit of access to the region of the gall-bladder, rupture of which was thought to have been the cause of the effusion of bile. Therefore drainage and irrigation with a boric-acid solution were the only further measures employed, and the patient made a good recovery. A biliary fistula persisted for three months, and then closed spontaneously.

#### TRIONAL AND TETRONAL IN THE INSANE.

In the April number of the *American Journal of Insanity* Dr. William Mabon, of the Utica State Hospital for the Insane, gives his experience with these drugs as hypnotics and sedatives in various forms of insanity. He finds that both are decidedly hypnotic and sedative, but that trional is the more serviceable as a hypnotic, and tetronal as a sedative. Unpleasant after-effects were noted in a few instances, but they were of short duration and at no time alarming. The hypnotic dose of trional is from ten to thirty grains, but it is advisable not to give more than fifteen grains at the first dose; the sedative dose is from ten to fifteen grains, but in some patients even forty-five grains produced no effect. The hypnotic dose of tetronal is from five to thirty grains, but with most patients fifteen grains are required to procure satisfactory sleep; the sedative dose is from five to ten grains once or twice a day.

#### CHLORALOSE AS A HYPNOTIC.

At a meeting of the Paris Society of Biology, held on February 25th (*Mercure médical*, March 1st), Dr. Féré reported that he had tried this drug in hysteria, in epilepsy, and in chorea. He had very soon found that much larger doses of it could be used than had been mentioned by Richet and Hanriot. Some of his patients had taken as much as thirty-five grains without harm. Nevertheless, the sleep produced by it in the conditions referred to, for example, in hysteria, was sometimes of a stertorous character; moreover, involuntary micturition during sleep occasionally occurred, and this indicated a profound suspension of cerebral activity. In some cases doses of twenty-two or twenty-three grains had produced sleep in epileptics. Excited subjects became tranquil after a sleep thus artificially induced. He had never known the drug to disorder the stomach. Dr. Chouppe said that for ten days he had given chloralose to a neurosthenic who was affected with gastric trouble, and not only had sleep been produced, but the dyspepsia had been cured.

#### ONYCHIA CIRGINATA.

At a meeting of the Berlin Society of Dermatology held on July 5, 1892 (*Annales de dermatologie et de syphiligraphie*, March, 1893), Dr. Joseph mentioned what he thought to be a previously undescribed form of disease peculiar to the nails. The patient was a physician who had had parasitic sycosis and tinea tonsurans. For some time there had been furrows on the nail of the left forefinger, parallel to the border of the nail, and at these furrows the nail would break spontaneously or in con-

sequence of some slight external cause. The speaker would call this affection onychia circinata. Its appearance had differed essentially from that of a mycotic affection of the nails termed in the abstract "onychomyeose tonsurante." No fungi had been found, but numerous micro-organisms. Corrosive sublimate had been used in the treatment. Dr. Lewin said he had seen two similar cases. Dr. Saalfeld had in one instance seen the convex surface of a nail replaced by a concave surface.

#### SODIUM IODIDE IN ANGINA PECTORIS.

In the *Revue générale de clinique et de thérapeutique* for March 29th Dr. Gingoot, of the Laennec Hospital, gives an account of a severe case of angina pectoris in which sodium iodide was prescribed, to be used in alternation with trinitrin—not alone during the attacks, but continuously. The sodium salt was to be taken for six weeks, and then the trinitrin for two weeks. The doses are not mentioned. After a considerable period of freedom from seizures the patient discontinued the use of the remedies, but a recurrence of angina led to a resumption of the treatment, which he then followed faithfully. The result has been that since March, 1890, he has not had the slightest manifestation of angina pectoris. To be sure, says Dr. Gingoot, this is only one case, but the old saying applies: *Non numeranda, sed pendenda observationes.*

#### EXAMINATION OF THE SALIVA IN CASES OF MORPHINE POISONING.

The *Union médicale* for March 23d contains a summary of Dr. Julius Rosenthal's account published in the *Centralblatt für klinische Medizin*, 1893, No. 1, of his recent researches into the salivary elimination of morphine administered subcutaneously. He has detected morphine in the saliva of patients to whom he was administering morphine subcutaneously to the amount of a centigramme daily, but not until three or four days after the use of the drug had been begun. On the other hand, the reaction continued for several days after it had been given up. This shows that morphine accumulates in the organism. It is eliminated partly by the gastric mucous membrane, but the amount found in the contents of the stomach is not an accurate index of the quantity that has been injected, for some of it may have been first eliminated in the saliva and then swallowed.

#### A MOSQUITO EXTERMINATOR.

The *Indian Medical Record* for March 16th says that a Bombay newspaper calls attention to the virtues of the castor-oil plant as a means of protection against mosquitoes. In Egypt it is planted about houses to drive the insects away. In towns, a better plan is to have the young plants in pots, and bring them into the house for a day or two at a time, but they must not be kept too long in the shade, for the *Palma Christi* is a sun loving plant. A writer is cited as saying that the mosquitoes are killed by a poison that they find on the lower side of the leaf, but it is stated that, if a dozen leaves are placed about a room that swarms with mosquitoes, they will disappear without leaving any dead ones lying about.

#### NASAL INSUFFLATION OF SOZIODOL-SODIUM IN WHOOPING-COUGH.

Dr. PAUL GUTTMANN (*Therapeutische Monatshefte*, January, 1893; *Fortschritte der Medizin*, April 1, 1893) reports favorable results from this treatment, but not such brilliant ones as those of Dr. Schwarz, of Constantinople. In no instance has he suc-

ceeded in cutting the course of the disease short in four or five days by means of daily insufflations. In a number of cases, however, their favorable action has been undeniable. In six cases treated in the Moabite Hospital diminution of the frequency and severity of the paroxysms was noted; in four of them in from three to six days, in two in eight days. In twenty-four cases treated at the Poliklinik also a favorable influence upon the course of the disease was observed.

#### CALCIUM CHLORIDE IN THE TREATMENT OF PNEUMONIA.

In the April number of the *Practitioner* Surgeon-Lieutenant-Colonel Crombie, of Calcutta, having found this drug superior to calx sulphurata in the treatment of boils evoked by the hot weather of India, inferred that it might have a favorable influence in pneumonia, but he acknowledges that "it is a far cry from hot-weather boils to pneumonia." He remarks that peptonuria is a constant phenomenon of pneumonia, and thinks it not impossible that the action of calcium chloride in the treatment of pneumonia consists in its neutralizing the toxic action of peptones or albumoses circulating in the blood. Several clinical histories are given to show the favorable influence of the drug.

#### MENTHOL IN PRURITUS OF THE GENITALS.

MENTHOL, in various forms is recommended by Colombini (cited in the *Revue générale de clinique et de thérapeutique* for April 5th) in the treatment of eczema of the vulva and of the scrotum. If the surface is excoriated, he prescribes a liniment of one part of menthol to ten parts of sweet-almond oil or an ointment of from one to four parts of menthol, sixty of vaseline, and thirty each of zinc oxide and powdered starch. If there is no ulceration, he orders an alcoholic solution of menthol, from five to ten per cent., or a powder of from one to three parts of menthol, fifteen each of zinc oxide and bismuth subnitrate, and fifty of powdered starch.

#### AMMONIUM CHLORIDE IN THE TREATMENT OF ASTHMA.

RUEL (*Presse médicale belge*, March 19, 1893; *Revue générale de médecine, de chirurgie et d'obstétrique*, April 5, 1893) has found on the cornea spiral formations resembling those described by Curschmann in 1882 as existing in the sputum of asthmatics and as made up of thickened mucus. Ruel finds that the corneal spirals are epithelial outgrowths, and, on the strength of his observation of them and of their behavior under the administration of ammonium chloride, suggests that the spirals of asthma are of like origin and would be checked in their formation by the use of the same drug.

#### WET APPLICATIONS IN ACUTE ECZEMA.

At a meeting of the Berlin Dermatological Union, the proceedings of which are given in the *Deutsche Medizinische Zeitung* for February 23d, Dr. Saalfeld recommended the treatment of acute eczema with applications of a freshly prepared mixture of lead-water and a three-per-cent. solution of boric acid. The proportions are not mentioned. The cloths are to be changed every fifteen minutes.

#### THE ASSOCIATED PHYSICIANS AND SURGEONS.

This is the title of a corporation that has been organized in New York, with Dr. Daniel Lewis as president, "for the purpose of performing the clerical, financial, and legal work necessary to the proper conduct and protection of the business affairs

of medical practitioners." It is high time that some such organization was effected, and we hope that a prominent feature of its work will be that of attending to legal formalities and expenses that may at times be suddenly and undeservedly entailed upon a busy practitioner, as was lately shown in our columns by the story of what happened to a gentleman who was unjustly accused of having produced a criminal abortion.

#### DIAPHATHERIN AS A DENTAL ANTISEPTIC.

In the January number of the *Therapeutische Monatshefte* there is an article by Dr. Brandt, of Berlin, in which, according to a summary published in the *Fortschritte der Medizin* for March 15th, he mentions the advantages of diaphtherin (oxyquinaseptol) for use within the mouth. While it is an energetic antiseptic, it does not irritate and its odor is slight.

#### ITEMS, ETC.

**Infections Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 18, 1893:

DISEASES.	Week ending Apr. 11.		Week ending Apr. 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	13	4	11	7
Typhoid fever.....	15	4	21	6
Scarlet fever.....	220	19	181	18
Cerebro-spinal meningitis.....	10	7	7	4
Measles.....	117	7	127	5
Diphtheria.....	132	55	99	38
Small-pox.....	9	2	7	0

**The Pan-American Medical Congress.**—The executive committee of the first Pan-American Medical Congress promulgates the following information:

1. The first Pan-American Medical Congress will be opened under the presidency of Professor William Pepper, M. D., LL. D., president of the University of Pennsylvania, at Washington, on September 5th, and will adjourn on September 8, 1893.

2. The countries officially participating in the congress are restricted to the Argentine Republic, Bolivia, Brazil, British North America, British West Indies (including B. Honduras), Chile, the Dominican Republic, Honduras (Sp.), Mexico, Nicaragua, Paraguay, Peru, Salvador, Colombia, Costa Rica, Ecuador, Guatemala, Haiti, Hawaii, the Spanish West Indies, the United States, Uruguay, Venezuela, the Danish, Dutch, and the French West Indies.

Distinguished representatives of the profession from other countries are expected to be present as guests and to participate in the proceedings.

3. The general sessions will be limited in number, one for opening and one for closing the congress being all that will be held, unless some necessity arises for a change in this particular. This arrangement will permit members to employ all of the time in the scientific work of the sections, which are as follows:

(1) General medicine, (2) general surgery, (3) military medicine and surgery, (4) obstetrics, (5) gynecology and abdominal surgery, (6) therapeutics, (7) anatomy, (8) physiology, (9) diseases of children, (10) pathology, (11) ophthalmology, (12) laryngology and rhinology, (13) otology, (14) dermatology and syphilography, (15) general hygiene and demography, (16) marine hygiene and quarantine, (17) orthopaedic surgery, (18) diseases of the mind and nervous system, (19) oral and dental surgery, (20) medical pedagogics, (21) medical jurisprudence, (22) railway surgery.

The evenings will be devoted entirely to social features, the detailed announcements of which will be made by the committee of arrangements.

4. Membership is limited to the members of the medical profession of

the Western Hemisphere, including the West Indies and Hawaii, who shall either register at the meeting or shall serve the congress in the capacity of foreign officers. No membership fee will be accepted from any member residing outside the United States. The membership fee for residents of the United States is ten dollars. All registered members will receive a copy of the *Transactions*. Prominent students of the allied sciences will be cordially received as guests and as contributors to the proceedings upon invitation by the executive presidents of sections. Ladies' tickets will be issued upon application to registered members only and will entitle the holders to reduced fare and to admission to all entertainments. Physicians of the United States should register at once by remitting ten dollars to Dr. A. M. Owen, treasurer, Evansville, Indiana.

5. Papers are solicited, the hope being entertained that the programme will be largely taken up with contributions from outside the United States. Papers may be read in any language, but a copy must be furnished for publication in either Spanish, Portuguese, French, or English, and must not occupy more than twenty minutes in reading. An abstract not exceeding six hundred words must be furnished the secretary general in one of the above four languages by not later than July 10th. Abstracts will then be translated by the literary bureau into the three remaining languages, and will be published in book form before the meeting of the congress.

6. The Congress of the United States has adopted a joint resolution whereby all the governments of the Western Hemisphere have been invited by the President to send delegates to the first Pan-American Medical Congress, and has appropriated a liberal sum for the purposes of entertainment.

7. The reduced fare offered by all transportation companies on the occasion of the World's Columbian Exposition, to be held in Chicago, will be open to all persons attending the Pan-American Medical Congress. The committee of arrangements will endeavor to secure still greater reduction to members traveling between Chicago and Washington, and an effort will be made to arrange either excursions or circular tours for those who may desire to visit the great universities of the United States. All such arrangements are open to subsequent announcement.

8. By arrangement with the committee at Rome, the date of the Eleventh International Medical Congress has been so appointed that those who attend the meeting of the Pan-American Medical Congress may subsequently attend the former. The Pan-American Medical Congress will adjourn on the afternoon of September 8th; a steamship will sail from New York on the following day, going by the Azores and Gibraltar and enabling the tourist to reach Rome on the morning of September 20th, where the Eleventh International Congress will be opened on the afternoon of September 24th. It will thus be seen at a glance that in the period usually allotted to a summer vacation the medical tourist may spend a week at the World's Columbian Exposition, the next week at the Pan-American Medical Congress, the next week and a half with delightful companions in a voyage to the Mediterranean, the next few days in witnessing the sights of Rome, and the following week at the Eleventh International Medical Congress. Special reduced rates for members and their families are given both ways on the trip to Rome, particulars of which will be furnished on application to the secretary general, 311 Elm Street, Cincinnati, Ohio, who is also a member of the American committee of the Eleventh International Congress.

9. The best possible arrangements will be made with the excellent hotels with which the national capital is abundantly supplied. The committee of arrangements will do its utmost to secure desirable rates and locations for members and their families. The headquarters of the committee of arrangements is at the Arlington Hotel, where communications may be addressed either to Dr. Samuel S. Adams, chairman, or Dr. J. R. Wellington, secretary.

10. Copies of the official announcement of the congress, containing the regulations and the names of all officers and committeemen of the general congress and of the various sections, and residing in the various countries, may be obtained upon application to the secretary general, or to either of the members of the international executive committee, as follows:



Argentine Republic, Dr. Pedro Lazleyze, Calle Artes 46, Buenos Aires; Bolivia, Dr. Emilio di Tomassi, Calle Ayacucho 28, La Paz; British West Indies, Dr. James A. de Wolf, Port of Spain. British North America, Dr. James F. W. Ross, 481 Sherborne Street, Toronto; Chile, Dr. Moises Amaral, Facultad de Medicina, Santiago; Costa Rica, Dr. Daniel Nuñez, San José; Dominican Republic, Dr. Julio Leon, Santo Domingo; Ecuador, Dr. Ricardo Cuelalon, Guayaquil; Guatemala, Dr. José Monteros, Avenida Sur No. 8, Guatemala City; Haiti, Dr. T. Lamothe, Rue du Centre, Port au Prince; Hawaii, Dr. John A. McGrew, Honolulu; Honduras (Spanish), Dr. Geo. Bernhardt, Tegucigalpa; Mexico, Dr. Tomás Noriega, Hospital de Jesus, Mexico; Nicaragua, Dr. J. I. Urtecho, Calle Real, Granada; Paraguay, —; Peru, Dr. Manuel C. Darrios, Facultad de Medicina, Lima; Republic of Colombia, Dr. P. M. Ibañez, Calle 5a Número 99, Bogotá; Salvador, Dr. David J. Guzman, San Salvador; Spanish West Indies, Dr. Juan Santos Fernandez, Calle Reina No. 92, Havana; United States of America, Dr. A. Vander Veer, 28 Eagle Street, Albany, N. Y.; United States of Brazil, Dr. Carlos Costa, Rua Largo da Misericordia 7, Rio de Janeiro; Uruguay, Dr. Jacinto de Leon, Calle de Florida No. 65, Montevideo; Venezuela, Dr. Elias Rodriguez, Caracas.

**The Congress of American Physicians and Surgeons.**—At a recent meeting of the executive committee of the Third Congress of American Physicians and Surgeons it was decided that three afternoons and one evening of the congress be assigned, in sessions of an hour and a half each, to seven of the fourteen participating organizations, and that each society selected should be requested to prepare its own programme and select its own speakers. The selection of the societies, under this resolution, to prepare programmes for the third congress was made alphabetically, as follows: (1) Anatomists; (2) climatologists; (3) dermatologists; (4) genito-urinary surgeons; (5) gynaecologists; (6) laryngologists; (7) neurologists. The ophthalmologists, orthopedists, otologists, paediatrists, physicians, physiologists, and surgeons, under this resolution, will in like manner prepare programmes for the fourth congress. The president and the secretary of the congress and the chairman and the secretary of the executive committee were made a standing committee to arrange the details of the congress. Dr. L. C. Gray was elected chairman of the executive committee, *vice* Dr. William Pepper, resigned. It was further decided to hold the congress in Washington on the last Tuesday in May, 1894, and the three succeeding days.

**Dr. Benjamin Franklin Sherman, of Ogdensburg, N. Y.,** lately president of the Medical Society of the State of New York, is to be given a dinner on the 25th inst. by the Ogdensburg Medical Association.

**A Congress of Medical Climatology** will convene in the Art Building in Chicago on May 29th, and continue in session for a week. On June 1st there will be a discussion on the causative and curative relations of climate to consumption.

**The Richmond Academy of Medicine and Surgery.**—The special order for the next meeting, on Tuesday evening, the 25th inst., is a discussion on Puerperal Peritonitis, to be opened by Dr. V. W. Harrison.

**Change of Address.**—Dr. M. J. Birstein, to No. 179 Henry Street.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 2 to April 15, 1893:*

DE LOFFRE, AUGUSTUS A., Major and Surgeon, will, by direction of the Secretary of War, be relieved from duty at Columbus Barracks, Ohio, upon receipt of this order, and will report in person to the commanding officer at Fort Logan, Colorado, for duty as post surgeon at that station.

GARDNER, EDWIN F., Captain and Assistant Surgeon. The leave of absence granted for seven days is extended twenty-three days.

IRELAND, MERRITT W., First Lieutenant and Assistant Surgeon, will be relieved from duty at Fort Riley, Kansas, on receipt of this order, and will report in person to the commanding officer, Fort Apache, Arizona, for duty at that post, relieving JARVIS, NATHAN S., Captain and Assistant Surgeon. Captain Jarvis, upon being relieved by First Lieutenant Ireland, will report in person to the commanding

officer, David's Island, New York, for duty at that post, relieving BREWER, MADISON M., First Lieutenant and Assistant Surgeon. First Lieutenant Brewer, upon being relieved by Captain Jarvis, will report in person to the commanding officer, Fort Riley, Kansas, for duty at that post.

KILBOURNE, HENRY S., Captain and Assistant Surgeon, will be relieved from duty at Fort Riley, Kansas, on receipt of this order at that station, and will report in person to the commanding officer, Fort Clark, Texas, for duty at that post.

MASON, CHARLES F., First Lieutenant and Assistant Surgeon, will proceed to New York city on Monday, April 24, 1893, and report in person to Colonel Charles H. Alden, Assistant Surgeon General, President of the Army Medical Board in that city, for examination by the board with a view of determining his fitness for promotion.

APPEL, DANIEL M., Captain and Assistant Surgeon, will be relieved from duty at Fort Bliss, Texas, as soon as possible after the receipt of this order, and will then proceed to Chicago, Ill., and report to the Commanding General, Department of the Missouri, for assignment to duty pertaining to the World's Columbian Exposition as attending surgeon for the officers and enlisted men on duty in the Exposition grounds.

MOSELEY, EDWARD B., Major and Surgeon, will be relieved from duty in the office of the Surgeon General of the army not later than May 1, 1893, and will report in person to the commanding officer, Fort Monroe, Virginia, for duty at that post, to relieve POLHEMUS, ADRIAN S., Captain and Assistant Surgeon.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending April 15, 1893:*

DIEHL, OLIVER, Passed Assistant Surgeon. Detached from the U. S. Steamer Essex.

SHIPP, E. M., Assistant Surgeon. Ordered to Naval Hospital, Boston, Mass.

HERNDON, C. G., Surgeon. Detached from the Marine Rendezvous, New York, April 12th, and placed on waiting orders.

DRAKE, N. H., Surgeon. Ordered to the Marine Rendezvous, New York.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the five weeks ending April 8, 1893:*

BAILLACHE, P. H., Surgeon. Detailed as chairman of Board for physical examination of officers, Revenue-Marine Service. March 21, 1893.

SAWTELLE, H. W., Surgeon. Detailed as chairman of Board for physical examination of officers, Revenue-Marine Service. March 7, 1893.

AUSTIN, H. W., Surgeon. Detailed as chairman of Board to prepare Quarantine Regulations. March 10, 1893.

GASSAWAY, J. M., Surgeon. To proceed to Ellis Island, New York, for temporary duty, then to proceed to Cincinnati, Ohio, St. Louis, Mo., Cairo, Ill., and Memphis, Tenn., as Inspector. April 3, 1893.

STONER, G. W., Surgeon. To inspect Hogg Island, Maryland, for quarantine purpose. March 17, 1893.

MEAD, T. W., Surgeon. Detailed as chairman of Board for physical examination of officers and candidates, Revenue-Marine Service. March 28, 1893.

CARTER, H. R., Surgeon. Detailed as member of Board to prepare Quarantine Regulations. March 10, 1893.

BANKS, C. E., Passed Assistant Surgeon. To proceed to Halifax, N. S., for temporary duty. March 29, 1893.

KALLOCH, P. C., Passed Assistant Surgeon. Granted leave of absence for ten days. March 24, 1893.

GLENNAN, A. H., Passed Assistant Surgeon. To proceed to Vineyard Haven, Mass., for temporary duty. March 6, 1893. To proceed to Cairo, Ill., for duty. March 22, 1893.

WASDIN, EUGENE, Passed Assistant Surgeon. To proceed to South Atlantic Quarantine Station for duty. March 22, 1893.

CARRINGTON, P. M., Passed Assistant Surgeon. To report at this Bureau for instructions preparatory to going to Hamburg. April 8, 1893.

- WILLIAMS, L. L., Passed Assistant Surgeon. Detailed for duty in the office of the United States Consul, Liverpool, England. April 5, 1893.
- BRATTON, W. D., Passed Assistant Surgeon. To proceed to Buffalo, N. Y., for duty. March 6, 1893.
- MCINTOSH, W. P., Passed Assistant Surgeon. Detailed as member of Board for physical examination of officers, Revenue-Marine Service. March 7, 1893.
- PETTUS, W. J., Passed Assistant Surgeon. Detailed for duty in the office of the United States Consul, Southampton, England.
- KINTOUN, J. J., Passed Assistant Surgeon. Detailed as member of Board to prepare Quarantine Regulations. March 10, 1893.
- WOODWARD, R. M., Passed Assistant Surgeon. Detailed for duty in the office of the United States Consul, Rotterdam, Netherlands.
- GEDDINGS, H. D., Passed Assistant Surgeon. Detailed as recorder of Board to prepare Quarantine Regulations. March 10, 1893. Detailed as member of Board for physical examination of officers and candidates, Revenue-Marine Service. March 28, 1893.
- HUSSEY, S. H., Assistant Surgeon. To proceed to Cincinnati, Ohio, for duty. March 21, 1893. Granted leave of absence for thirty days. March 24, 1893.
- PERRY, J. C., Assistant Surgeon. To proceed to Vineyard Haven, Mass., for duty. March 13, 1893.
- YONG, G. B., Assistant Surgeon. Detailed for duty in the office of the United States Consul, Naples, Italy. March 6, 1893.
- BROWN, B. W., Assistant Surgeon. Detailed for duty in the office of the United States Consul, Genoa, Italy.
- HOGGTON, E. R., Assistant Surgeon. Detailed for duty in the office of the United States Consul, Havre, France.
- KYDECKER, J. A., Assistant Surgeon. To proceed to Pittsburgh, Pa., for duty. March 6, 1893.
- STEWART, W. J. S., Assistant Surgeon. Granted leave of absence for five days. March 8, 1893. To proceed to South Atlantic Quarantine for temporary duty. March 10, 1893. To proceed to Baltimore, Md., for duty. March 22, 1893.
- STRAYER, EDGAR, Assistant Surgeon. To proceed to Portland, Me., for temporary duty. March 29, 1893.
- BLUE, RUPERT, Assistant Surgeon. To proceed to Cairo, Ill., for temporary duty. March 7, 1893. To proceed to Galveston, Texas, for duty. March 22, 1893.
- OAKLEY, J. H., Assistant Surgeon. Assigned to duty at Savannah, Ga. March 23, 1893.
- NORMAN, SEATON, Assistant Surgeon. Assigned to duty at Evansville, Ind. April 8, 1893.

#### Appointments.

- BLUE, RUPERT, of South Carolina. Commissioned Assistant Surgeon. March 3, 1893.
- OAKLEY, JAMES H., of Illinois. Commissioned Assistant Surgeon. March 22, 1893.
- NORMAN, SEATON, of Indiana. Commissioned Assistant Surgeon. April 6, 1893.

#### Resignations.

- CONDUCT, A. W., Assistant Surgeon. Resigned, to take effect August 1, 1893.
- HUSSEY, S. H., Assistant Surgeon. Resigned, to take effect June 30, 1893.

#### Society Meetings for the Coming Week:

- MONDAY, April 24th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.
- TUESDAY, April 25th: New York Dermatological Society (private); Buffalo Obstetrical Society; Medical Society of the County of Putnam (quarterly), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Litchfield, Conn., County Medical Society (semi-annual); Boston Society of Medical Sciences; Richmond, Va., Academy of Medicine and Surgery.
- WEDNESDAY, April 26th: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New

York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany, N. Y.; Auburn, N. Y., City Medical Association; Philadelphia County Medical Society; Berkshire, Mass. (Pittsfield—annual), and Middlesex, Mass., North District (annual—Lowell), Medical Societies; Gloucester, N. J., County Medical Society (quarterly).

THURSDAY, April 27th: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private—annual); Hartford, Conn., County Medical Association (annual); Pathological Society of Philadelphia.

FRIDAY, April 28th: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

#### Answers to Correspondents:

No. 400.—In our opinion, the course you mention is perfectly proper.

## Letters to the Editor.

### THE SEX QUESTION.

7 HALSEY STREET, BROOKLYN.

To the Editor of the New York Medical Journal:

SIR: I ask space in your esteemed *Journal* for a few comments on a communication in your number of July 2d last from D. E. Keefe, M.D., entitled *Controlling Sex in Generation*. I ask it as the author of a book I copyrighted in 1884 on this subject, under the title *Controlling Sex in Generation*, which has been on the market for sale ever since, and which Dr. Keefe makes reference to simply as "Mr. Terry's little book," he using the title as the heading to his communication, without any footnote to indicate to his readers that it is the title of my book, though such footnotes otherwise abound giving the titles of the books quoted from or referred to by him.

While I might well be gratified by the additional and substantial proof of my theory his investigations give, the manner in which he ignores the details in my book while aspiring to erect a structure for himself on its foundations is, to put it mildly, not the liberal and fair dealing one feels naturally entitled to receive from a man who writes M. D. after his name.

Though fully accepting my theory that "the parent sexually prepotent at the moment of conception impresses not his or her own, but the opposite sex on the offspring," he objects to my phrase "highest degree of sexual excitement" to express the condition which gives this prepotency, and substitutes "highest degree of sexual and general bodily and mental vigor." Then he claims not only this change, but the dominant idea as *his theory*.

Now, a dispute over words to express ideas so nearly related is usually profitless. Dr. Keefe admits that in my book the element of "sexual vigor" is embraced in "sexual excitement"; in fact, the numerous passages he quotes from my book show this. The error which led to his objection to my term lies in his misconception of the meaning of the word "excitement," which is as given in Webster: "3. *Med.* A state of aroused or exalted vital activity in the body or any of its parts." The neurotic persons he refers to are in a morbid condition through which they possess a high *excitability*, which is quite a different thing. "Erethism," which is, according to Webster, "a morbid degree of excitement or irritation in an organ," is the medical term applicable to the condition of such persons. Their disordered nervous and usually sexual condition renders

them unable to bear even a low tension of sexual excitement, a disruptive discharge of the electric condition occurring at the slightest strain on the organism. One might, with equal propriety, maintain that materials most inflammable—that is, most readily set on fire—produce the greatest heat.

I carefully drew this distinction between excitement and excitability in different places in my book as the subject came up practically (see paragraph *i*, page 76, and pages 132, 136); and the word excitement was not used by me without due consideration of its weight and propriety. It is a word widely used in medical practice in the sense quoted from Webster, and is a common one to express the somewhat allied condition of an insulated person charged with electricity from a battery. He is said to be electrically excited.

The highest degree of sexual vigor, which Dr. Keefe prefers, is rather the capacity to ordinarily take on the highest degree of excitement. It presents more visibly the probability of a higher excitement, so that by it such classifications as Dr. Keefe makes are possible. But its power may be overborne in the conjugal embrace by a partner of less sexual vigor more highly aroused by sexual ardor. The results in Dr. Keefe's second and third classes show this—in one 25.6 per cent., and in the other 7.35 per cent.; the higher sexual vigor is shown to have been overcome by the increased ardor of the one inferior in vigor. The highest sexual vigor may be easily placed in the inferior position by an emetic sufficient to produce nausea. It is only when all things run in their natural course, and conditions on both sides are equal, that highest sexual vigor gives highest sexual excitement to the determination of offspring of the opposite sex.

But this is not really *controlling* the sex, which goes a step beyond, and requires often that the parent with less sexual vigor shall, for the occasion, have his or her passion aroused or exalted in a higher degree, and thus become prepotent through a higher state of sexual excitement.

On what other principle is Dr. Keefe to change the 92.64 per cent. of the husbands in his third class so they will be prepotent? He certainly can not expect these basic qualities of sexual, bodily, and mental vigor can be materially increased in a day or a year. As is shown near the close of his article, he relies for producing this prepotency on such conditions as tend to increase the power to take on a higher excitement.

In introducing what he calls *his theory* of the reason why a parent impresses on his or her progeny not his or her own but the opposite sex, he remarks: "Mr. Terry has offered no adequate explanation of this; he only gives experiments proving the fact, but not the reason for it." Surely Dr. Keefe must have read my book with very little attention. Chapter XI (fifteen pages in the first edition) is wholly devoted to this subject, and a hypothesis is there presented scientific in character, logical, and consistent throughout. Note H (nine pages more in the appendix to the later editions) is confirmatory. No attempt has ever been made to controvert the hypothesis or to show in it any fallacy.

Dr. K.'s hypothesis for this presents no physiological law that will apply to the lower orders, and, so far as it applies to human beings, it is based on the condition of highest sexual excitement—a condition which he aptly describes, though in different words. I shall not, however, attempt to controvert his hypothesis in this, as all such are necessarily speculative; and, like the physicians' hypothesis as to the principle on which many medicines act to effect a cure, they must rely for acceptance on their rationality; they can not be proved.

I might take exception to much the doctor says about *his* theory and the rules for controlling sex, as the same ideas, often in the same words, are found throughout my book (see pages

82, 83, 86, 89 to 93, 112, 113, 116, 120, 121, 183, 205, and Chapter X throughout, as well as Notes A, C, and G in the appendix); but I pass this over. I have lived long enough to know that a busy man may, in reading a book, treasure up in his memory the leading ideas, while those less prominent escape him; and years after, when these latter come to him in considering over the principal ideas, he honestly thinks they are the conclusions of his own brain.

That Dr. Keefe has good perceptive faculties is shown by the results of his classifications; but his capacity for drawing logical conclusions is less acute, as shown by his remarks on Dr. W. H. Cook's theory that in conceptions occurring in the earlier night males are more frequent, and in those toward morning females. Paragraph *a*, page 67 in my book, and one on pages 82 and 83, though written before the promulgation of Dr. Cook's theory, show how this may be in some families, yet exactly the reverse in others. But Dr. Keefe assumes to show the fallacy of Dr. Cook's theory by a classification of births occurring between different hours of the day and night. Finding a hundred and twenty-nine on his list born between 12 m. and 12 p. m., of which 44.96 per cent. were females and 55.04 per cent. males, he deduces from this the falsity of Dr. Cook's theory. There is a stretch of occult intelligence in this I can not fathom, and the doctor does not explain. It is how Dr. Keefe satisfied himself that all these hundred and twenty-nine children born between 12 m. and 12 p. m. were begotten between midnight and morning.

*Controlling sex* under this theory—that is, the making of the parent of less sexual vigor prepotent at the moment of conception—is not so simple a matter as Dr. Keefe presents it; there are many factors in the problem which have to be considered. Under the governing influence of his "highest sexual and bodily and mental vigor" alone, the parents in his second class should always have girls and those in his third class always boys. Twins and triplets should always be of one sex; and all the progeny of any one parturition of multiparous animals should be of one sex. But notably this is not so, and in the fact that it is not has largely lain the mystery that environs the subject. When we saw that our smaller domesticated animals gave birth to five to ten young at a time, usually with varying proportions of each sex, it was very manifest that the influence determining the sex vibrated from one side to the other at very short intervals and on apparently slight grounds.

Having myself been the first to advance the theory that the prepotent parent impressed at the time of conception the opposite sex on the offspring—a theory which has already been quite widely accepted, and concerning which a critic of my book very sapiently remarked: "This throwing of the sex to the weaker side of the parent seems to be one of the all-wise provisions of Nature in maintaining the equilibrium of the sexes in man and beast throughout the whole animal kingdom: by this the side of the weak is constantly strengthened from the side of the strong, and thus the equilibrium is preserved"; and believing, as I thoroughly do from my lifelong experiences and investigations, that among married couples the sex of their offspring can, by attention to the matter, be male or female as they may desire; and, further, believing that much of the unhappiness, misery, and vice now existing in society is wholly due to the less proportion of men in the community—I feel the importance of endeavoring to keep the theory as set forth in my book free from all needless divarications about minor matters.

I hail with gladness all such tabulated statements as Dr. Keefe presents, tending as they do to strengthen and confirm the theory.

But what is now more especially needed is a consideration of the various specific causes which will surely enable the mar-



ried partner of less sexual vigor to take on the increased ardor which in the conjugal embrace makes him or her prepotent, inducing in the offspring a sex other than would be the case naturally. In this my book is admittedly deficient. At the time it was written only the more general principles could be given, just as Dr. Keefe gives them in his article. This is a subject more especially open to the medical profession to encompass. The need is to arrive at such a knowledge of these causes that a physician, especially one practicing in an old settled community, can, from the knowledge ordinarily obtainable in his practice, prescribe such a course of living, of diet, perhaps of medical remedies to that end, to those among whom he practices, that they may have in their offspring either sex they desire, with all the certainty he can prescribe a pill that will induce purgation. This is already done to some extent among breeders of stock, where the control of sex is often of great pecuniary gain to the breeder. There is, of course, more difficulty with human beings, owing to their artificial and more varied manner of living, and these give rise to the many exceptions. While Dr. Keefe's tables are valuable, they would have been invaluable had he traced out and given us the reasons why the 25.6 per cent. of the husbands in his second class and the 7.35 per cent. of wives in his third class were not prepotent, as by his observations they should have been. It is true his diagnoses from external appearances may have been at fault, but that is just what is wanted—why were they at fault?

To present somewhat of the lines in which investigation must work to ascertain the cause for these exceptions, I note three which came under my notice:

Some fifteen years ago, between the completion of the manuscript of my book and its publication, and while I was still watching for corroborations or refutations of my theory, I casually met at a summer resort a buxom young woman fresh from boarding school who to the eye seemed the bean-ideal of lusty womanhood. She was accompanied by her betrothed, a puny, boyish-looking youth, of little apparent vigor of any kind. Naturally I predicted in the union, soon to come off, male offspring. But to my surprise she had a daughter; and it almost upset my established theory in my own mind. But a year or so later I sat at the same table with them, and took note that she was a very dainty eater, while he had an appetite like an outdoor laborer. I found also that after his marriage he had embarked in business, and was known in it as an ardent and tireless worker. She, on the other hand, though still retaining her buxom appearance, had been unable to nurse her child, and was then a semi-invalid. The second case came to my notice in this wise:

A stranger in a distant city, the principal of a public school, having purchased a copy of my book, and, like Dr. Keefe, being impressed with its probable truth, set out to verify it by observation among his intimate acquaintances. He found one exception so remarkable that he wrote me about it, all the other cases satisfactorily conforming to my theory. In this exception the wife, who was a near relative of his, gave no characteristics of any sexual ardor, while the husband did. Not only this, but it was known among some of his jolly friends that he actually kept a mistress to satisfy his craving passion; and yet his wife had mostly boys. I cogitated long over this, till one day Charles Reade's story, *Put Yourself in His Place*, came to my mind, and it occurred to me that if his wife suspected his infidelity, and he was desirous of sustaining with her a reputation for morality, it would induce him, on retirement at night with his wife, after spending an evening in the arms of his mistress, to assume a sexual desire when he really had none; so that in the embrace she would be prepotent. I wrote this to my correspondent, who accepted it as fully accounting for the sex of

their children, writing me that his wife did suspect him of being untrue to her, sometimes insinuating as much to him, which he strove to confute.

The third case is something like the first, though on the other side. I was slightly acquainted with a young professional man, a sort of amateur athlete, fond of hunting, fishing, and outdoor sports generally; of good manly figure and, withal, somewhat noted for his gallantry. Later I heard of his marriage to a frail, delicate-appearing woman of slight figure and weight, and that they had a son. I was somewhat inclined to suspect the same circumstances existing in his case as in the second above, as it was the current belief of those who knew him well that the marriage on his side was a mercenary one, but a year later I was a visitor at a summer resort for some time where they sojourned, and sat at the same table with them. The same conditions as seen in the first case, only reversed, were very obvious. He was often complaining that the food did not agree with him, having special dishes of farina or gluten and milk, or the like, prepared for himself; while she ate ravenously of anything set before her—"all was fish that came to her net"—without ever a complaint of indigestion. Not only this, but with all his fondness for athletics and his apparent muscle, he was often deficient in muscular energy. It came to my knowledge that if, when riding out together as they did every day, his horse became fractious and difficult of control, he sometimes surrendered the reins to his wife to bring the horse to subjection. They have since had two children, another boy and a girl.

In the first of these cases the probable cause for the failure of the wife to impress her influence on the sex of her child lay in the indolent life she had led as a school girl. Her vital energies, though healthy, were not accustomed to respond promptly, or be readily incited to an exalted action, as in one trained by exercise. Consequently she was incapacitated to take on a high condition of sexual or any other excitement. This want of energy caused her to break down under the strain of child-bearing and lactation—a not uncommon result among young wives brought up in luxury and idleness (*vide* my book, page 67, paragraph b).

In the third case the husband's failure was probably due to periods of indigestion, during which there would naturally be a depression of the vital powers. Although he had a superior degree of "sexual, bodily, and mental vigor," it was at such times incapable of being aroused to any high state of excitement, just as would be the case when recently exhausted by sexual congress with another than his wife, as was suggested in the second above case.

It is such disturbing factors as these that need to be sought out by further investigation, and classified and made known, to fully complete my book, and these, as said above, can best be ascertained by physicians if they would give the subject their attention.

From some later observations I am inclined to believe that a rheumatic condition tends to obstruct or hinder the taking on of that higher state of sexual excitement necessary to prepotency, even when the individual seems endowed with all the prerequisites—the nervous system not responding so actively to the desire. The wife (mentioned on page 59 of my book) who had so large a proportion of daughters was a chronic sufferer with rheumatism. Du Bois Reymond, the celebrated German naturalist, in his work on *Animal Electricity*, mentions investigations tending to show the existence of free electricity in both men and women, but that its manifestations sink to zero in persons seriously afflicted with rheumatism. I have referred to this in note H in the appendix to my book in connection with a different subject.

SAMUEL H. TERRELL.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

*Meeting of April 4, 1893.*

The President, Dr. M. ALLEN STARR, in the Chair.

#### "Cerebrine" in the Treatment of Locomotor Ataxia.—

Dr. GREGORY M. HAMMOND presented a case of locomotor ataxia which he had been treating with hypodermic injections of cerebrine. Six years ago the patient, a man aged forty, had begun to suffer with double vision. This, after several months of treatment, had disappeared and for a time he had been quite well. Then the typical symptoms of locomotor ataxia came on. There was complete loss of the knee-jerks; he had sharp pains in his legs; the ataxic gait was well marked; there was inability to stand with the eyes closed, even when the legs were some distance apart; he had difficulty in evacuating his bladder and bowels; his sexual power was lost; and he had a sense of constriction around the waist. There were no eye symptoms. The man denied syphilis. Treatment was begun about ten weeks ago, and consisted of a daily hypodermic injection of cerebrine, five minims, combined with five minims of water. Dr. Hammond said he presented the case with some diffidence, on account of the method of treatment employed; no one had had less faith in these animal extracts than himself. The improvement in this case, however, had been very marked. The man's sexual functions had been perfectly restored, he had complete control over his bladder and bowels, the sharp pains had disappeared, his general health had improved, he was able to run up and down stairs, and could stand fairly steady with his eyes closed. The knee-jerks, however, had not returned. No other treatment had been employed. The improvement had been gradual and steady, and had begun about a week after the first injection. The cerebrine employed was that prepared by Dr. William A. Hammond.

Dr. JOSEPH COLLINS had employed subcutaneous injections of cerebrine, as prepared by Dr. Paul Gibier, in a few cases of locomotor ataxia; the improvement in those cases had been about equal to that in Dr. Hammond's patient. It was not uncommon, he said, to see the virile powers return in these patients; this had occurred after applying blisters to the back. A case had also been reported in which the shooting pains had disappeared after injections of phosphate of sodium.

#### Progressive Muscular Atrophy, probably Syphilitic.—

Dr. HAMMOND also presented a boy with the following history: Two years before, while he was rowing a boat, the oar in the left hand slipped from his grasp and his fingers lost their power. In about five minutes he was able to use his fingers, but not the thumb, and from that time on the paralysis had progressed, first spreading to the other muscles of the hand and gradually to those of the arm. Fibrillary twitchings were now very marked. There were hemiatrophy of the tongue and paralysis of one of the ocular muscles, with double vision. The boy had lost the power of whistling and of speaking certain words. There was incoordination on standing with the eyes closed, also loss of the knee-jerk on each side. There were no other ataxic symptoms, no sharp pains, no bladder or bowel symptoms, and no anæsthesia or paræsthesia. The expression of the boy's face was rather characteristic of hereditary syphilis, and the boy's father was now under treatment for syphilis. There was no history of acquired syphilis in the boy. There were no objective symptoms.

**Syphilis of the Spinal Cord.**—Dr. B. SACHS opened a discussion in which he first reviewed the recent work of Erb on

this subject. Erb had sought to establish a "type" of spinal-cord disease which he proposed to label "syphilitic spinal paralysis." This special type was to be recognized by the following characteristics: 1. The usual symptoms of spastic paraplegia, with its peculiar gait, carriage, and movements. 2. The reflexes being very much exaggerated. 3. The muscular contractures being slight as compared with the exaggeration of the reflexes. 4. Involvement of the bladder. 5. Slight but distinct disturbance of sensation. 6. The gradual onset of the disease. 7. A decided tendency to improvement.

Dr. Sachs said that, while he did not mean to dispute the existence and the propriety of establishing Erb's type of spinal disease, he believed there were other and broader points of diagnosis which should not be disregarded. To illustrate these points he gave the history of four cases of undoubted syphilitic disease of the spinal cord. In these cases the following were the salient features that had led to the diagnosis: In three of them there had been spastic paraplegia of the most pronounced type. In these the reflexes had been excessively exaggerated. In two the muscular contractures had been slight; in one of them they had been extreme. In one there had been permanent involvement of the bladder; in the others there had been no such involvement. In all but one of them sensation had been disturbed. In two the onset had been gradual; in the others it had been quite sudden. All of them had shown a decided tendency to improvement. In one instance there had been a distinct atrophic paralysis, with all the symptoms that pointed to a widespread affection of the gray matter of the cord. In one case, in which the diagnosis of syphilitic disease had been more evident than in any of the others, the contractures had been extreme, the bladder had remained involved up to the present time, and bedsores had formed, as in the most typical case of acute transverse myelitis.

The following points had impressed themselves on the speaker's mind as the more characteristic of spinal-cord syphilis: 1. The unusual distribution of the disease over the greater portion of the cord, involving in some cases the cervical, lower dorsal, and lumbar enlargements. 2. The relatively slight intensity of the morbid process as compared with the extensive area involved, as shown by the preservation of some of the functions of the cord with complete loss of others. 3. The rapid dwindling of some of the symptoms and a very chronic persistence of others. 4. The very frequent history of other symptoms pointing to syphilitic disease in the same or in other parts of the central nervous system.

In syphilitic spinal-cord disease there was not, as in cases of acute myelitis, a morbid process that was rapidly destructive and that quickly advanced through the entire cross-section of the cord, entailing all the symptoms due to loss of function of the various spinal systems. If the syphilitic disease was the result of a specific endarteritis of the cord, we knew that some, but by no means all, of these vessels were affected, and that the disease advanced slowly from one group to another. If there was diffuse specific infiltration, it also invaded very slowly one part after another. It had a remarkable tendency, too, to increase for a time and then to recede, whether as a result of treatment or not, and then possibly to increase with renewed force. If the infiltration started from the meninges, it most frequently invaded the lateral columns first, often at symmetrical points, and advanced very slowly from white to gray matter. The intensity of the process was spent upon the lateral columns; hence the frequency of the spastic symptoms. It might invade the gray matter, giving rise to sensory symptoms, sometimes to atrophic symptoms.

Dr. CHARLES L. DANA said that in one case of spinal-cord syphilis that had come under his observation the patient had

died of an intercurrent disease. The type of symptoms in that case had resembled so closely what Gowers had described as ataxic paraplegia that that had been the clinical term applied to it. The autopsy had shown a transverse myelitis, of syphilitic origin, in the dorsal region, and the appearance of the lesion had been much like that described by Dr. Sachs—it had started from the meninges and gradually invaded the substance of the cord. The speaker had almost come to the conclusion that whenever there was a transverse myelitis which was not manifestly due to hæmorrhage, tumor, injury, or the like, and which did not develop suddenly, but came on gradually and irregularly, there was presumptive evidence of its syphilitic origin.

Dr. EDWARD C. SEGUN said that Dr. Sachs's description of syphilitic disease of the cord coincided very much with his own experience. The irregularity or lack of completeness of the symptom group was a very characteristic feature in these cases. The speaker also referred to another class of cases—namely, those in which the symptoms were those of pressure upon the spinal cord, as was seen in paraplegia dolorosa, or the myelitis of compression. He gave the histories of two such cases that had come under his observation.

Dr. LANDON CARTER GRAY had long regarded with suspicion any case of paralysis of the upper or lower extremities with marked contractures and with or without increase of the tendon reflexes. This was particularly true in cases where the symptoms were unequal or asymmetrical. The poison of syphilis, however, was so diffused that it was unsafe to assume that its effect was spent entirely upon any particular set of fibers in the spinal cord, and it was difficult to lay down a certain set of symptoms which should be present in these cases.

Dr. ROBERT S. NEWTON gave the history of a patient in whom the symptoms of transverse myelitis had developed while he was under active treatment for syphilis, which had been persisted in for over a year.

**The Present Status of Craniectomy.**—Dr. GRAY opened a discussion on this subject. He stated that about three years before Lannelongue had proposed the operation for the relief of mental defects in children. The causes of such mental defects were, in the main, the following: Porencephalitis; meningitis and meningo-encephalitis; hæmorrhage, either diffused or localized; trauma; hydrocephalus; myxœdema; possible premature ossification of the skull, mainly in the region of the sutures and fontanelles. The latter cause had been brought into prominence lately by Lannelongue's operation, although the idea had not originated with him; it had been advocated as far back as in 1851 by Virchow, in his memoir on cretinism, and it had been under discussion since in various other writings. It was impossible to obtain, in this country at least, a sufficient number of skulls of idiots whose histories had been carefully recorded to pass upon any question of this kind by the examination of skulls. Taqueet had examined twenty-nine skulls of idiots, and believed as a result of this investigation that obliteration of the sutures of the cranium was not more premature in idiots than in healthy individuals, so that the arrest of cerebral development had in none of his cases been the result of an arrest of development of the skull. The speaker was entirely at a loss to understand how it could be for one moment supposed that the examination of the skulls of these idiots could throw any light upon the question as to whether primary ossification of the sutures and fontanelles arrested the development of the cerebrum. Taqueet's conclusions, he thought, were not supported by his cases.

Of all the causes of idiocy above mentioned, only the premature ossification of the sutures and fontanelles, recent traumatic injuries, and hæmorrhages could possibly be benefited by crani-

ectomy, for encephaloporosis, meningitis, meningo-encephalitis, and myxœdema were lesions that the surgeon's knife could not in any way affect. A correct diagnosis in these cases was of the utmost importance. If in any case of idiocy we could obtain a reliable history from some one who had been with the child since its birth, best of all its own mother, and we could positively exclude trauma, meningitis, hæmorrhage, and myxœdema, we should have to deal only with so-called tuberous hypertrophy, encephaloporosis, and premature ossification of the sutures and fontanelles. Tuberous hypertrophy was so rare as to be practically of no account. Encephaloporosis occurred generally in fetal or early infantile life, and would in a vast majority of cases cause some paralysis of motion or sensation. Encephaloporosis, meningitis, hæmorrhage, trauma, and tuberous hypertrophy were very likely to cause some organic destruction of the cerebrum or cerebellum, and this must manifest itself by mutism, blindness, motor paralysis, localized convulsions, or contracture of a single limb or of both an upper and lower limb on the same side. If in an idiot child we could exclude these symptoms, it seemed quite reasonable to make a diagnosis of premature ossification of the sutures and fontanelles as causative of the mental condition. The speaker was quite willing to believe that the pressure of a non-expanding skull upon a cerebrum expansile with developing tendencies was quite sufficient to cause such symptoms of cerebral irritation as strabismus, generalized convulsions, inability to walk, contractures, violent temper, involuntary micturition and defecation, and various general muscular movements that could not be classified. This was precisely the point that had not yet been tested by the operations that had been done. In concluding his remarks, the speaker narrated five cases of craniectomy that had come under his observation.

Dr. DANA presented a boy, six years old, upon whom Dr. S. D. Powell had performed craniectomy about a year before. The child was illegitimate, and nothing was known of his history up to his attaining the age of a year. He was rachitic; the fontanelles were large and had closed during the third year. During the first three years of his life the boy had suffered with general convulsions, three or four such attacks occurring daily. Up to the time of the operation he had been unable to swallow except when in the semirecumbent posture, and had been able to take only liquid food. He had not been able to say a word or express a thought. Measurements of the head had shown it to be of less than the normal size. A few weeks after the operation he had begun to talk and been able to masticate and swallow solid food. There had been a very decided and striking increase in his intelligence. This had become noticeable a few weeks after the operation. Measurements of the skull since the operation had not been particularly instructive. The great circumference of the head had increased only half a centimetre; the naso-occipital circumference had increased nearly two centimetres. From this it would be observed that the head had grown a little faster than was usual in children of that age.

Dr. Dana also narrated three other cases of craniectomy that he had observed. All three of these patients had died from shock soon after the operation. In conclusion, he stated that he did not see how we could draw any conclusions, one way or the other, as regarded the determination of what class of patients should be operated on. The subjects of infantile hemiplegia, with epilepsy and idiocy, could hardly ever be benefited by the operation.

Dr. S. D. POWELL gave the details of his operation in the first case narrated by Dr. Dana. A longitudinal incision five inches and a half long had been made, and, extending from this, two cross-sections of bone been removed, each two inches long



The longitudinal incision had been a quarter of an inch wide. The child had had an uneventful recovery, and by the fifth day there had been perfect union. The dura had not been opened. It had appeared to be much thickened, and there had seemed to be a collection of fluid beneath it.

Dr. SACHS gave the histories of three cases of craniectomy. In the first and second death had rapidly resulted from shock. In the third case a longitudinal section of bone had been removed from one side of the skull and the child had recovered. Some months afterward a second operation had been undertaken for the purpose of removing a like section of bone on the opposite side of the head. This operation had proved fatal. The speaker presented the skull of this patient. It showed that the longitudinal opening made at the first operation had become firmly closed by the dura (which had not been opened) and by a dense fibrous mass. This had occurred during the two months intervening between the first operation and the time of the child's death. This specimen clearly showed, the speaker said, that the removal of a long strip of bone, as suggested by Lannelongue, was not effective and did not relieve the general pressure, as he had said it would. Our results would no doubt be better if we took out a large flap of bone in the frontal region, thus giving that portion of the brain which needed it most a chance to develop. In a considerable number of cases of idiocy it was the frontal portion of the brain that was deficient. The proper cases for operation, the speaker thought, were those in which there were all the symptoms of idiocy without any symptoms of organic disease of the brain, except in retarded development.

Dr. HAMMOND said that five cases of idiocy for which craniectomy had been performed had come under his observation. His own experience, as well as the experience of others, with Lannelongue's operation had led him to the conclusion that it stopped idiocy only by stopping the child's life. In his five cases, two patients had died; the three others had improved very slightly. There was not a single case on record where the operation had cured idiocy. It simply transferred the patient from one degree of idiocy to another. The proper cases to select for operation, he thought, were those where the patients were but slightly idiotic, not the hopeless cases. The operation should be done as early as possible, before degenerative changes had set in. It should not be undertaken after the sixth or seventh year of life.

The PRESIDENT, in reply to a question, stated that the operation of craniectomy had been performed, apparently, without regard to the age of the patient. Keen had operated on one patient nineteen years old; Hammond, Sr., had operated on one aged twenty-two years; Weir had operated on one aged eighteen years.

Dr. NEWTON gave a short review of the literature of this subject. He stated that the operation for microcephalia had originated from statements made by Virchow, in 1851, in which he had attributed cretinism to the early closure of the cranial sutures. Later on, however (1875), he had modified his statements in this regard.

Dr. SEGUIN said that for a long time he had held the opinion that the early closure of the fontanelles and the premature ossification of the cranium were secondary to the arrest of development of the brain, and he had always advised against operative interference in these cases. Now he stood ready to be convinced as to the value of craniectomy for the relief of such patients. The cases thus far reported, he thought, were not very hopeful. The improvement noted in a few cases had been slight, while the surgical results were far from encouraging.

Dr. MARY P. JACOBI said that, according to her recollection

of Virchow's monograph, his observations regarding the early closure of the sutures had only referred to the sutures at the base of the skull—the union of the basilar process with the sphenoid bone.

Dr. SACHS regarded the operation of craniectomy as an extremely dangerous one—much more dangerous than operations for epilepsy, tumor, etc. The patients were usually very young, and the shock and hemorrhage were severe.

The PRESIDENT thought the members took too pessimistic a view of the operation. He had had six patients operated on without a single death. The total number of cases reported by the speakers, he said, was twenty-three; of these, seven had proved fatal. Aside from these, he had collected thirty-seven cases with fourteen deaths—a mortality of about thirty-three per cent. This rate of mortality, he thought, was not so very high when we bore in mind that the operation was undertaken to relieve an apparently hopeless condition.

Of the six patients that had come under his observation, three had materially improved in intelligence; the other three had been operated on too recently to warrant any definite report at present. The operations had been performed by Dr. McBurney. Lannelongue's mode of operation had been found inefficient, as the space left by the bone removed soon became filled up with a dense fibrous tissue. Wagner's operation had been adopted. With the grooved chisel a curved, omega-shaped incision was made through the skull on each side. These flaps of bone were then firmly grasped and raised upward until they became fractured, thus giving plenty of room to the brain beneath. The flaps of bone were permanently fixed in their raised position. In one case both sides of the skull had been treated in this way. The chisel, when properly used, caused very little shock. By means of it the work went on much faster than with the trephine. The chisel must be very sharp, such as was used for cutting ivory. In conclusion, the president's experience in these cerebral cases had led him to believe that we knew as yet very little about the varied pathological conditions of the brain.

## New Inventions, etc.

### A NEW NASAL INSTRUMENT.

By WALTER VUIRUS, M. D.

ASSISTANT SURGEON TO THE EAR DEPARTMENT OF THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE.

A YEAR and a half ago the author published in the *Archiv für Ohrenheilkunde* the construction and use of a nasal instrument which, after having somewhat modified and improved, he hereby presents anew to the American profession.

It was intended and has proved to answer a purpose which hitherto could be obtained by no other instrument in an equally thorough, simple, and sparing way—viz., the removal of broad-based intumescences of any kind of soft tissue in the continuity or at the extremities of the turbinated bones, at the septum or around the choanae, but, above all, the hypertrophies of the posterior ends of the inferior turbinated bones (especially if they are not pedunculated or pendulous), chronic swellings of the erectile tissue at the anterior and middle part of the inferior, and the broad sessile papillomatous excrescences at the inferior edges of both the middle and inferior turbinated bones.

Hitherto there were two different methods of operating, and one combination of both generally applied for the removal of such intumescences—viz., the galvano-cautery, by means of flattened or pointed burners, and the écrasement by the cold

galvano-cautery snare. Snaring is easily applicable in cases of polypoid growths or other pedunculated hypertrophies, but even with the additional help of Jarvis's transfixion needle it is often very difficult to catch a sessile tumor in the elastic snare and prevent its partly or entirely slipping out when the latter is constricted.

Galvano-cautery, which does not restrict itself to a mere superficial sloughing effect like that produced by one of the chemical caustics, but tends to really carbonize any greater amount of tissue, is a very tiresome and barbarous procedure, particularly as it implies burning of the neighboring sound tissue by radiating heat, and has thus sometimes produced firm attachments between the septum and the inferior turbinated bones.

Knife-shaped galvano-caustic instruments for cutting purposes have justly never been much used, for the galvano-caustic division of tissue is best effected by means of a thin wire, either in the form of a contracting snare, or on the principle of a soap-cutter, as is the case in the instrument here presented.

The main parts of the instrument consist of two brass wire shanks of four-inch length diverging for the first half of their course, in which they are a little flattened and stiffened by hammering; then running—about an inch apart—parallel to their blunt-pointed ends, which are connected by a semicircular loop of platinum wire (No. 27, Brown and Sharp's gauge), stiffened by the addition of iridium.

Mr. Stohlmann (of Tiemann & Co.) called the writer's attention to the excellent qualities of this metallic combination, and thus enabled him to preserve to the instrument that slenderness which he had formerly considered one of its greatest advantages, but feared he would be obliged to abandon on account of the great pliability of the thin copper-wire shanks and the pure platinum loop originally employed.

By cause of the heat, which the soldering of the loop to the shanks requires, the extremities of the latter obtain more pliability than the rest, which eventually serves to permit of an easier and more perfect adaptation to every individual case, while the hammered parts secure the necessary strength and resistance. The shanks run into the handle at an angle of about 120°.

This handle is provided with an electric key and connects the shanks with a battery of such strength that by closing the circuit a quick and bright glowing of the loop is effected. The instrument is introduced into the nostril through a spacious nasal speculum (for instance, Voltolini's), after having shaped its loop and shank to exactly suit the individual case (lateral curvatures are required by projections of the turbinated bones or of the septum, vertical ones by the occasional vaulting of the floor of the nostril), so that the loop embraces the hypertrophy or tumor to be removed from behind, the shanks bordering it from above and below.

A great advantage of the instrument is found in that it does

not at all obstruct the view of the pathological object. By a gentle pressure and a short glow the loop is easily made to penetrate the tissue and severs the intumescence by intermittent short glows and traction, peeling it clean from its base, being itself covered by the amputated strip which protects the surrounding mucous membrane from the radiating heat.

During the whole procedure it is well to maintain a slight side pressure, or the loop might prematurely emerge on the surface.

There is hardly any hemorrhage if the intermittent glows are short enough, so that no severance of blood-vessels by non-coagulating white glow heat is produced.

After a thorough operation the rough denuded surface of the underlying bone can sometimes be felt with a probe, but it is covered in due time by smooth, dense, cicatricial tissue, and has never been observed to become necrotic.

The writer hopes that his American colleagues will find the instrument in its new shape as useful as it has proved to him and others for several years, even in its former imperfection, and acknowledge as special virtues its simplicity and cleanliness as well as the ease and universality of its successful application.

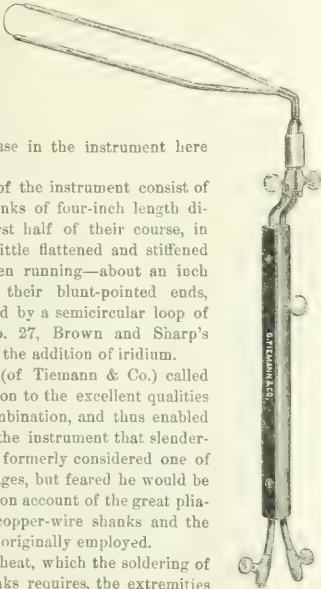
79 EAST FIFTY-SIXTH STREET.

## Miscellany.

**The Recent Conference of State Sanitary Officials**, held in New York, has called forth the following editorial article from the *Boston Medical and Surgical Journal*:

"The recent conference of State boards of health held in New York has happily adjourned. As the most graceful and desirable thing about the *vaut rien*'s life was his leaving it, so it may be said of this conference, that the best and most useful thing it did was to adjourn. It is a self-constituted body without representative powers or privileges, composed of officials connected in some capacity with various State boards of health. The personal action or opinion of these individual officials in no way binds the health boards with which they are connected, and may not even correctly represent the course which will be adopted by those boards in regard to a given question. The power and jurisdiction of the boards themselves is limited by legislative appropriations and enactments. If measured by the appropriations, the power in many instances must be very small. If these officials would devote themselves—their time, their energies, and such powers and means as their respective States grant them—to encouraging, developing, and applying measures of internal sanitation, to making sure that water-supplies were pure and uncontaminated when brought to the consumer and properly disposed of when rejected as effluents, they would be doing a work at once of the greatest benefit to the people at large, and one needing no less than all the time and thought of all these boards. When, however, the officials of these boards undertake to regulate interstate commerce and lay down rules for the great interstate transportation companies at epidemic periods, they are transcending their proper sphere of action, and in so far as they are not wasting their time, such a course will tend to make confusion worse confounded, especially if the independent action of each State is advocated.

"The regulation of interstate traffic and travel—whether from the commercial or the sanitary point of view—must be and can only be effected by the Federal Government. Congress has failed to supply suitable or sufficient machinery to effect this object, and the country must accept the consequences in having precautions neglected in times of tranquility and ridiculously exaggerated in periods of excitement and panic. The recent act to increase the powers and duties of the Marine-Hospital Service may be made efficient and effective for the protection of the coast line and possibly of the Canada line, especially with the cordial co-operation of the local quarantine officials, but its unfortunate limitations are made plain in the light of this conference in New York.



"A good deal of attention is being given to water-supplies. This in itself is reassuring; but where the chief result is to prove that a supply is contaminated, which before was only suspected, and this without correcting the evil or only attempting to correct it in a manner at once temporary, costly, unscientific, and grotesque, then this talk about water-supplies and drainage is quite the reverse of reassuring. The water-supplies of several of our largest cities (it is entirely unnecessary to name names), to say nothing of smaller cities and towns, are very far from being protected as they should be. This is so generally understood that there will probably be no 'unsuspecting' stranger to be warned against them. All the strangers will be *suspicious* strangers. The warnings had better be reserved for the natives, who have grown callous to these conditions."

**The Pan-American Medical Congress.**—The Section in Otolaryngology has been organized as follows: Executive president: Dr. C. M. Hobby, Iowa City, Iowa. Honorary presidents: Dr. Adolph Alt, St. Louis; Dr. Albert H. Buck, New York; Dr. Gorham Bacon, New York; Dr. W. Cheatham, Louisville; Dr. Francisco de P. Chacón, City of Mexico; Dr. Sebastian Cuervo Serrano, Santo Spirito, Cuba; Dr. J. C. Connel, Toronto; Dr. Stephen Dodge, Halifax, Nova Scotia; Dr. J. B. Eaton, Portland, Oregon; Dr. A. A. Foucher, Montreal; Dr. John F. Fulton, St. Paul; Dr. J. Wilford Good, Winnipeg, Manitoba; Dr. Francis B. Loring, Washington; Dr. Henry D. Noyes, New York; Dr. Arturo Costa Pruneda, Santiago Chile; Dr. Charles Inslee Pardee, New York; Dr. G. Sterling Ryerson, Toronto; Dr. D. B. St. John Roosa, New York; Dr. W. H. Sanders, Mobile; Dr. Belisario Rosa, Lima, Peru; Dr. G. C. Savage, Nashville, Tenn.; Dr. J. J. B. Vermyne, New Bedford, Mass. Secretaries: Dr. Max Thorne (English-speaking), Cincinnati; Dr. H. McHatton (Spanish-speaking), Macon, Ga.; Dr. Fernando Perez, Buenos Ayres, Argentine Republic; Dr. Ernesto Mazine, La Paz, Bolivia; Dr. Theodoro Peckolt, Rio de Janeiro, U. S. of Brazil; Dr. J. H. Wishart, Toronto; Dr. Carlos Desvergne, Havana, Cuba; Dr. Carlos Esguerra, Bogotá, Colombia; Dr. Demetrio Orantes, Guatemala City, Guatemala; Dr. H. G. McGrew, Honolulu, Hawaii; Dr. Antonio Peñañel, City of Mexico, Mexico; Dr. Montenegro, Leon, Nicaragua; Dr. N. Surh, Montevideo, Uruguay; Dr. Focion F. Cordero, Merida, Venezuela. Advisory Council: Dr. F. N. Lewis, New York; Dr. M. D. Jones, St. Louis; Dr. J. H. Thompson, Kansas City, Mo.; Dr. Robert Tilly, Chicago; Dr. Thomas E. Murrell, Little Rock, Ark.; Dr. N. J. Hepburn, New York; Dr. Harold Gifford, Omaha, Neb.; Dr. H. C. Hawley, Sioux Falls, South Dakota; Dr. Edward M. Whitney, New Bedford, Mass.; Dr. T. J. Tyner, Austin, Texas.

**No "Sun-down" Medical Students in New York.**—The *Sun* has made a fitting answer to the following query:

"Will you please inform me if there is a medical school in New York in which the lectures for the first year are given in the evening or any time after 3 p. m.?"

The *Sun's* reply is as follows: "Duffy, you and dozens of other 'would-be doctors' think you can study medicine in the happy-go-lucky way the law-pills study law—lectures in the afternoon, office work in the morning. You must give up that idea at once. Medicine requires twenty-five hours out of twenty-four, and more on Sundays and holidays. The lectures in every medical school are given when the professors and lecturers can find time for them. They're given in the morning, and in the afternoon, and the evening; and some of the private 'quizzes' begin at 10.30 or 11 p. m., and stop in time to get ready for breakfast if you dress quickly. Now, Duffy, if you ask because you think medicine is a snap like these afternoon law schools, you'd better keep out of it; but if you can stand the pace, and ask simply because you're ignorant, why, go ahead, and with good health and hard work you may get your license to 'kill, kill, kill, kill, kill, kill.'"

**The Medical Society of the State of North Carolina** will hold its fortieth annual meeting in Raleigh on the 9th, 10th, and 11th of May, under the presidency of Dr. J. W. McNeill, of Fayetteville. The preliminary announcement contains the following:

A Report on the Practice of Medicine, by Dr. E. M. Summerell, of Mill Bridge; A Report on Surgery (Inguinal Hernia), by Dr. J. P. Munroe, of Davidson College; A Report on Obstetrics, by Dr. J. H. Marsh,

of Fayetteville; A Report on Gynecology, by Dr. R. H. Whitehead, of Chapel Hill; A Report on Materia Medica, by Dr. Thomas Stamps, of Lumber Bridge; A Report on Therapeutics, by Dr. C. E. Hilliard, of Asheville; A Report on Pathology and Microscopy, by Dr. W. T. Pate, of Gibson's Station; A Report on State Medicine, by Dr. S. J. Montague, of Winston; Cerebro-spinal Meningitis, by Dr. Thomas Stamps, of Lumber Bridge; A Report of Cases, by Dr. J. M. Hays, of Oxford; Vis Naturæ et Vis Medicatrix Naturæ, by Dr. A. M. Ballard, of Asheville; Pneumonia, by Dr. J. N. Peace, of Creedmore; Appendicitis, viewed from a Personal Standpoint, by Dr. J. W. Long, of Randleman; Diphtheria, by Dr. R. A. Patterson, of Aurelian Springs; a paper by Dr. R. L. Payne, of Lexington; The Regimen and Treatment of Hyperchlorhydric Dyspepsia, The Necessity for Vaccination in North Carolina, and Some of the Defects of the Country Asylum for the Care and Treatment of the Pauper Insane, by Dr. J. Allison Hodges, of Wilmington. There will be a discussion on Rheumatism, to be opened by Dr. D. T. Tayloe, of Washington.

**To Contributors and Correspondents.**—The attention of all who purport to *confer* as with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or *prolix* histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank paper for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.



## Original Communications.

## SARCOLOGY AND SARCO-THERAPEUTICS.

By WALLACE WOOD, M. D.

PROFESSOR IN THE UNIVERSITY OF THE CITY OF NEW YORK.

THE experiments of the eminent French physician Brown-Séquard in producing a scientific *elixir vite* from the flesh of the guinea-pig, and the equally rational and legitimate experiments of Dr. Hammond in injecting cerebrine into the blood for tired brains, and cardine in cases of heart failure, are not only interesting, but they bring the practical physician and the medical profession generally to fields and pastures singularly and utterly new. Not only is the materia medica left behind, but one no longer deals either with anatomy or physiology, or with organs or tissues, or cells or molecules; he is brought face to face with the naked flesh, and the miracle of transubstantiation is reduced to a formula. We are introduced to a new medical science.

Of the well-known official categories of mundane things, the world, the flesh, and the devil, the first and the last escape the "knife and glass," but the second, amenable to facts and laws, offers a true foundation, and sarcology may be a science as legitimate as that of chemistry or histology.

How many kinds of flesh are there in the organism? Four, and these are elementary, cardinal; they are nerve, muscle, vessel, and gland.

These four radicals are vital and palpitating. These four kinds of flesh live and throb, each with its peculiar kind of life or life force; excitement, motion, nutrition, production.

If a poet were writing the great epic of Prometheus he might in Homeric line describe the analysis and synthesis of man. Setting aside the skin and the bones, exoskeleton and endoskeleton, the rest would be thrown into four huge mortars and reduced to pulp—primordial plasma. Into the first mortar would go the brain and nerves, into the second the muscles and sinews, into the third every vessel of the body, heart, veins, arteries, lymphatics, intestines, all the body tubing, the flesh of supply; and into the fourth go the glands and parenchymes, lungs, liver, kidney, testes.

The result would be four kinds of human pulp—that is, nervous pulp, muscular pulp, vascular pulp, and parenchymatous or glandular pulp. All the makings of a man are there, and in the next canto the exulting Titan might proceed to mold the organism anew.

This process, formidable and wild, no doubt, fit only for the Titan or the poet, would appear much less wild and formidable if for a man we substitute a *corpus vile*, the guinea-pig, and the scene be changed from Olympus to one of the admirably constructed new laboratories in the Rue de l'École de médecine in Paris. Skin and skeleton being set aside, all the brain and nerve of the little animal is put together, all the muscle and sinew in the second place, vessel both sanguiferous and chymiferous in the third, and finally the gland and parenchyme. Each part may then be desiccated and reduced to an impalpable powder. All the vital flesh

of the guinea-pig would thus come to lie in four little heaps of dust—"dust thou art"—yet it is vital dust. These four powders contain neurine, vasculine, musculine, glanduline; treated with spirit, these become elixirs—nerve elixir, elixir of muscle, elixir of vessel, elixir of gland; theoretically, they are the true elixirs of life. Theoretically, we could introduce these particles into the blood and build up or restore worn-out or exhausted parts.

Whether the guinea pig or any rodent would be the best animal for the purpose is a question; one might take higher animals—for instance, the bullock. Dr. Hammond, in making testine, very naturally selected the ram as the proper subject.

The only preparations I have made of the kind are from the squirrel. I have in my office four small phials containing together a powdered red squirrel, nerve powder, muscle powder, vascular powder, gland powder. Until the experiments of Brown-Séquard and Dr. Hammond I had regarded them rather in the light of foods, and my thought was how to get their extract into the duodenum without risking dissolution in the stomach. But the idea of an *elixir vite* has a greater fascination.

It would be very easy for a practical or experimental physician to have an entire bullock served in this way by some large manufacturing house like Reed & Carnrick. Subjected to their ovens and mills, in less than eight hours the entire carcass would be reduced to these four heaps of impalpable powder. If this life powder could be transubstantiated—that is, if it could be introduced into the circulation and transferred to the part to which it belongs—or if an extractive form could, by gelatin coating, be introduced into the duodenum and taken up by the lacteals, and thus transferred to the part, no assimilation would be required; each part would select its part.

Who knows but that the powdered calomel and jalap of the opening nineteenth century may give way in the opening twentieth century to powdered nerve, muscle, or gland!

If instead of desiccating and pulverizing these four radical and elementary parts of the flesh, I had used Brown-Séquard's method of simply expressing the liquid, I should have had squirrel juice instead of squirrel powder—that is, nerve juice, muscle juice, vessel juice, gland juice. Such liquids, if used for medical purposes, must of necessity be used fresh, as they quickly undergo change; but by employing the method described by Dr. Hammond, treating with boric acid, glycerin, and absolute alcohol, I should obtain what in theory would be the four radical and elementary extracts of the organism—neurine, musculine, vasculine, glanduline; and if these were injected into the blood, or placed by means of capsules at the rootlets of the organism in the duodenum, they ought to mend, reconstruct, or build up exhausted, broken-down, or worn-out organisms, and constitute a true and scientific *elixir vite*, realizing in part the dreams of ancient philosophers.

The objection that the liver and kidney are excretory and might be poisonous, valid if applied to concentrated extracts of these organs taken singly, would not perhaps

be valid in case where the whole mass of glandular flesh is taken together (liver and kidney are very good food, but of course they are both transformed in the stomach); experiment might show that in making glanduline only small portions of these organs should be used, and one might add such organs as the ovaries and mammae; and in fact, if it is a question of making glanduline of a special kind, the ovaries of hens and the udders of cows naturally suggest themselves.

The end sought in these four extracts, or cardinal forms of *elixir vite*, would be to raise, respectively, the nervous or excitatory power, the motor power, the vital or growth power, vigor, vitality, and the effusive or sympathetic power.

## KAUFMANN'S METHOD FOR THE STAINING OF TUBERCLE BACILLI.

FROM THE LABORATORY OF CLINICAL MEDICINE,  
UNIVERSITY OF MICHIGAN.

By FANNIE LEWIS BISHOP,

ASSISTANT TO THE PROFESSOR OF THEORY AND PRACTICE OF MEDICINE

In the *Centralblatt für Bakteriologie und Parasitenkunde*, Bd. xii, 1892, p. 142, Kaufmann, of Cairo, described a method of decolorization in the staining of tubercle bacilli which he maintains has an advantage over former ones because of its simplicity. His method is as follows:

After the sputum has been spread on the cover glass, fixed in the flame, and stained with the carbolie-fuchsin solution in the usual way, the cover glass is washed in boiling water for a minute and a half to three minutes. Examined now in water, the tubercle bacilli show dark red on a grayish-white background.

In staining tubercle bacilli perfect technique has been proved to be more important than the method, by the manner in which numerous methods, vaunted as superior by their discoverers, have fallen into oblivion. Nevertheless, this modification of Kaufmann's seemed to deserve a trial, especially as it does not introduce a new stain, but uses the well-tried Ziehl's solution.

At the suggestion of Dr. Dock, I have made some investigations with the method of Kaufmann with the following results: Using tuberculous sputum in the way described, I found that the tubercle bacilli retained their color longer than the other organisms in the preparations. In pus from a tuberculous empyema, containing an almost pure culture of the tubercle bacillus, with a few cocci, there was apparently no diminution of the actual number of the former up to the time the cocci were totally decolorized. But by continuing the boiling process all the bacteria, even the tubercle bacilli, entirely lost their color. The time for this varied from four to six minutes.

So far as sputum is concerned, there is evidently no doubt about the certainty of this method, and it adds an interesting item to our knowledge of the characteristics of the tubercle bacillus. But the question of the utility of the process must be considered.

I found that distilled water gave better results than hydrant water, which caused a deposit upon the preparation.

If the same water was used for a second cover glass a deposit of fuchsin was produced and decolorization was slower than in clean water.

I also found that if the cover glasses were boiled in an evaporating dish over the flame, it was not necessary to hold them with a forceps and "swill" them, as they were kept in constant motion and in a perpendicular position by the upward currents in the water.

Kaufmann supposed that his method would be used less in the laboratory than in general practice, and especially in country practice. But as the cover glass must be carefully watched and taken from the boiling water at the exact time of decolorization of the other organisms and nuclei, as pure water fresh for each specimen is needed, and as the water must be kept at or near the boiling point during the process, it offers no advantage in simplicity over the usual methods of decolorization by dilute acids or by the action of a contrast stain; and as every physician is supposed to have nitric acid in his office or workroom, the substitution of water for acid is less of an advantage than might be supposed. It could only be by the merest accident that a physician would have microscope, fuchsin solution, and sputum in a place where he could not get nitric or sulphuric acid; in such a rare event it would of course be of service to him to know the possibility of substituting the water for the acid.

The time necessary for staining is not materially shortened by Kaufmann's method. I have been unable to take a specimen through the whole process of decolorizing by boiling in less than three minutes; usually the time has been nearer five minutes. But with the acid decolorization one can usually perform the whole process in less than two minutes.

Obviously no comparison can be made regarding the durability of the color in permanent mounts, Kaufmann's method being of so recent a date. I have recently examined a slide in Dr. Dock's collection which was mounted in November, 1888. It was stained with carbol-fuchsin, decolorized with thirty-per-cent. nitric acid, and contrast-stained with Loeffler's methylin-blue, and shows now, after more than four years, brilliantly stained tubercle bacilli.

In conclusion, one can say that Kaufmann's discovery, though interesting and under some circumstances valuable, does not alter the force of the statement that, in staining for tubercle bacilli, mastery of the technique is the most important thing, and that the control of a simple and well-known method should precede essays with newer ones.

## ON SURGICAL DISEASES OF THE NECK,

INCLUDING THE FIRST ANNUAL REPORT OF  
THE SPECIAL DEPARTMENT OF SURGICAL DISEASES OF THE NECK  
AT THE GERMAN POLIKLINIK OF THE CITY OF NEW YORK.

By CARL BECK, M.D.

At first sight it may appear rather unnecessary or even odd to have created a new specialty as indicated above, but a closer contemplation of the subject will produce a great many points in its favor.

The field of surgery has, thanks to the great inventions

of the last two decades, become so broad that there is no brain imaginable which could master all the details of general surgery. Therefore it appears not more than natural that there are specialists for orthopædic, for abdominal, as well as for genito-urinary surgery. Since the last few years specialties even for surgical diseases of the face and mouth, for cancer, for hernia, and, last but not least, for diseases of the rectum have been created.

I see no reason why the neck should not be entitled to rank with the latter organ, for instance, as far as importance and scientific interest are concerned. The one fact is indisputable, that among all regions of the body it shows, in spite of its small extent, the greatest number and variety of all kinds of tumors.

As by chance it was my good fortune during a period of nine years to observe a more than usual number of surgical diseases of the neck at the German Poliklinik, I frequently had the opportunity to witness capital errors on the part of distinguished members of the profession in reference to diagnosis as well as to treatment.

Thus, for instance, last year not fewer than five so-called cold abscesses were sent to me by prominent physicians with the diagnosis lymphosarcoma and fibroma; undoubtedly the slow growth, and particularly the hard consistence of the deep-seated collection of pus, had produced the idea of a solid tumor.

How remarkably the views of the faculty differ could, by the way, be observed recently in a controversy between two distinguished members of the profession which for nearly the whole month of March filled the space of the *Medical Record*.

One of the gentlemen, a laryngologist, published an interesting case in which the patient had died, as he supposed, from infectious pharyngitis. The other gentleman, a surgeon, maintains that the patient's disease was angina Ludovici, and that probably by early incisions he would have been cured.

I do not hesitate to confess that I, especially before having enjoyed the chances of the special department, frequently had to correct my initial diagnosis after having observed similar cases more closely.

The importance of the organs alone, the complicated anatomical condition, the great danger of the bold as well as the elegant operations which can be performed on the neck, could already justify a special position for surgical diseases of the neck, which, ever since surgery existed, had been its *pièce de résistance*.

But the diagnosis seeming to me paramount, it became clear to me that only a careful and constant clinical study, which can not be obtained except from a multitude of patients afflicted alike, can grant that amount of experience which is demanded for clear indications for treatment.

Without undervaluing the various ingenious modern apparatuses for diagnostic purposes, particularly the microscope, I dare say that especially at an early stage of serious diseases—i. e., at a period when not only the best but very often the only chances for a cure are offered—the clinical experience alone, as a rule, furnishes the guide for interference.

The sad and well-known case of Emperor Frederick of Germany may illustrate this somewhat, as some of the greatest authorities alive disagreed remarkably in regard to the character of the tumor of his larynx.

It is or was generally believed that it was cancerous, but that there was a strong suspicion for syphilis was evident by the fact that for a long time the unfortunate distinguished patient had been treated with inunctions of mercury and was fed with large doses of iodide of potassium, and only when no decrease of the swollen glands of the neck could be obtained specific treatment was abstained from.

Be it well remembered, too, that at an early stage of the fatal disease, when a piece of the tumor was removed for microscopic examination, no less a man than Rudolf Virchow found no evidence of either syphilis or carcinoma, but a simple *verruca*.

It is superfluous to say that a different opinion in reference to the character of the disease corresponds with a different therapy—so different, in fact, that the life may depend upon it.

As mentioned already, the neck, the narrow joining link between the head and trunk—or, as Hyrtl calls it, the pedicle of the head—is distinguished by the great number and variety of all kinds of tumors, so that there is scarcely a species in existence which can not be found in this little space.

Besides sarcoma, carcinoma, syphilis, gummata or glands, and tuberculosis, I should like to mention the hyperplastic, the leucæmic, and the malignant lymphoma, lymphangioema, lymphosarcoma, fibrosarcoma, fibroma, enchondroma, osteoma, steatoma, neuroma, lipoma, struma, myxoma, atheroma, aneurysm, simple angioma, and the monolocular and multilocular cyst—that is, cystic tumor of the visceral arches: air cyst, serous cyst (hydrocele colli), deep-seated dermatoid cyst, blood cyst (hæmatocele colli), synovial cyst (hygroma of the thyroid region), echinococcus colli; furthermore, tumors produced by leucæmia or pseudoleucæmia.

Among the various kinds of abscesses I may mention the idiopathic ones, the phlegmonous, the prevascular, retrovascular, retropharyngeal, and retro-oesophageal abscesses.

Of great importance are the inflammatory processes following infectious diseases of pharynx and nasopharynx, the spondylitis, the torticollis, the caries, the congenital fistula, and the disfiguring scars following extensive burns.

Regarding the difficulty of differentiation, Lücke (Lücke, Pitha-Billroth, iii. Bd., 1. Abth.) has worked out a scheme by dividing the tumors of the neck in groups according to the various regions.

Inside of each group the tumors are classified in reference to their physical marks, thereby discriminating between cystic, solid, and pulsating tumors.

This very complicated scheme works beautifully so long as it answers only a theoretical want, but is of no practical value.

It seems to me much more advisable, therefore, to make, following Albert (E. Albert, *Lehrbuch der Chirurgie und Operationslehre*, Vienna and Leipsic, 1884), a distinction between a few possibilities from a clinical standpoint, as it is the custom to do in all other doubtful ques-



tions. Furthermore, to pay regard to the general health of the patient.

When a new-born child, for instance, is suffering from a tumor of the neck, this can only be an angioma cavernosum, or a hygroma, or a congenital struma.

A struma is occupying the region of the thyroid gland and is in close connection with the trachea, which can easily be recognized by the corresponding upward movement of the growth while swallowing.

An angioma might establish itself anywhere. Its reddish-blue color, the spongy feeling by touch, the fact that it can not be compressed, and that it swells up while the patient is crying, furnish the evidence of its character.

The congenital hygroma, when starting, has its domicile in the submaxillary region, and is characterized by the multiple cystic cavities of which it consists.

In older children the usual form of tumors is represented by the lymphatic growth—that is, the so-called scrofular lymphoma, a term which, by the way, since the discovery of the tubercular bacillus, has become obsolete, as the majority of these ill-defined lesions, which are grouped under that indefinite and vague word scrofula, have been shown by recent researches to be ætiologically and clinically, as well as anatomically, identical with the recognized forms of tuberculosis.

Among a great number of cases a whole chain of tubercular glands is well marked. The appearance of the children afflicted therewith is what is generally called scrofulous—that is, they look badly nourished and anæmic. One or the other gland might already have broken down, so that there is scarcely any doubt as to the character of the disease.

On the other hand, one simple gland is swollen, the child bears a healthy appearance, and there may be no family history of a tubercular disposition. Then a simple lymphoma is suspected.

If the little tumor is situated in a region where glands normally have to be expected, if it can be easily moved and separated from its surroundings, and if it is of small size, the diagnosis is corroborated.

In adults, struma, malignant lymphoma, and aneurysm, in old age carcinoma of the œsophagus, the thyroid gland, or of the lymphatic glands, may be suspected.

The anæmic child, the young consumptive and the old, suffering from carcinomatous cachexia, in their general appearance at once have to point our suspicion toward a certain direction.

Besides this general view we have to regard the topography. Hygromas occupy the thyroid region, echinococcus cysts only the supraclavicular region, especially below the sterno-cleido-mastoid. The visceral-arch cysts establish themselves only at the anterior margin of the sterno-cleido-mastoid.

Besides this, we have to take note of a very striking physical symptom of only a limited number of tumors—*i. e.*, the distinct pulsation.

There it is essential to know whether this pulsation originated from the tumor itself. If this is not the case, a great number of possibilities have to be taken into consid-

eration, as the pulsation of a tumor can be carried to any growth which may be situated above an artery.

If the tumor itself is the seat of the pulsation, then the only differentiation would be between an aneurysm or a pulsating vascular sarcoma.

This sometimes is very difficult if not impossible to determine, as the character of the pulsations in both such cases is perfectly identical; the shape and situation, besides, might show nothing extraordinary.

Even the consistence may leave a reasonable doubt, as in the various portions of a vascular sarcoma it often may be irregular.

Another important point may be where there is a difference in the pulse of the afflicted and of the healthy side. This may indicate an aneurysm.

Furthermore, an aneurysm grows slowly, while a sarcoma, as a rule, increases more rapidly. Besides, if thoroughly observed, pulsation may have been noticed already at a time when the tumor is still of small circumference, and then the aneurysm from its start may have shown a soft consistence, while the sarcoma is hard and resistant.

Many more doubts are possible in tumors the contents of which are liquid. Take the case of a well-defined fluctuating tumor of peanut size at the anterior margin of the sterno-cleido-mastoid. It may be what is termed a cold lymphadenitic abscess just as well as a visceral-arch cyst or a thyroid, or a blood or an echinococcus cyst. To make a diagnosis in this case we, in the first place, have to decide if the tumor ascends or descends synchronously with swallowing.

Second, we have to find if it is adherent to the thyroid gland. If this is so, it is a thyroid cyst; if not, we have to examine if a part of the tumor can be partially emptied. If this can be done, a blood cyst is probable; if not, its mobility comes in play. In case the base of the tumor is movable, we probably have to deal with a lymphoma with softened contents; but in case the mobility is doubtful, it may be an echinococcus or visceral-arch cyst.

The differentiation between these two conditions can only be made from the history, as the latter presents itself only during puberty, while the echinococcus occurs at any period of life.

An aspirated blood cyst naturally yields blood, while a visceral-arch cyst yields a pappy mass.

These few examples may suffice to show the difficulties of differentiation, these being, as a rule, of much more importance, so far as the patient's life is concerned, than the operations, in reference to which some special principles unlike those governing the surgeon on other regions of the body have to be observed.

I will not speak of such masterly proceeding as the ligation of the innominate, which will forever immortalize the name of Valentine Mott.

But I may lay stress upon some points like the necessity to perform operations on the neck with blunt instruments. It is remarkable how rarely I cut a large vessel unexpectedly since I have adopted this principle. The most valuable instrument for this purpose is the blunt-pointed scissors, curved on the flat (so-called Cooper's), which,

when closed, adapt themselves to the convexity of the tumor.

Large and deeply situated tumors naturally cause great difficulties in operations. Here it is of great importance to make extensive incisions, always exceeding the limits of the tumor on each side.

A vertical cut alone generally does not suffice, wherefore it always is wise to make a cross incision besides right at the beginning of the operation. Often I have found it useful to add a so-called trap-door cut.

I have never tried to ligate the large vessels methodically before the extirpation of a tumor, as advised by Langenbeck, but by proceeding bluntly I was always able to catch the vessels between two forceps before they were cut through. It is practical to ligate the vessels first in the centripetal direction and after this on the opposite side of the tumor. This procedure is especially useful if the tumor has been growing around the vessels. Deep down, where the usual forceps makes it quite troublesome sometimes to apply the ligature, my own artery clamp—which, on account of its rectangular shape, makes sliding over easy—has done me considerable service.

During extirpation the tumor should be only slightly pulled, as strong traction might empty large veins, so that they might be taken for connective tissue and incised. A less experienced surgeon may then be astonished about the large amount of bleeding following relaxation. Besides the danger of bleeding, the patient should never be exposed to the great risk of the entrance of air into the vessel. By relaxing the growth every time before doubtful tissues are incised, this undoubtedly frequent occurrence can be avoided.

I have always succeeded in extirpating atheromata of the neck, if movable, by my own method, which in short I may describe once more on this occasion (cf. *N. Y. medizinische Monatsschrift*, December, 1886). With a sharp-pointed bistoury I make a small cut anywhere into the skin covering the tumor, and just large enough to allow a probe or small blunt curved scissors to pass through. (A strong probe is to be preferred.)

After having loosened the sac with the instrument from its adhesions thoroughly, I open the cyst, introduce a small Péan forceps, seize the sac somewhere, and pull slowly. At the same time I am squeezing the contents out as the placenta is expressed from the uterus in Crede's method. Thus by exercising patience I can remove the largest sac in the same manner as a large ovarian cyst is withdrawn through a small abdominal opening, after having it emptied or otherwise diminished its size in the abdominal cavity.

After the removal the cavity is irrigated with a one-promille bichloride solution and a light dressing is applied.

The greatest advantage I allege for this my method is, that it leaves no scar, a circumstance which for cosmetic reasons is probably more appreciated by the fair sex. (It is evident that the same procedure can be employed for atheromas of the face.)

Besides the method described, it makes sewing unnecessary, it causes nearly no bleeding at all, and grants recovery after two or three days as a rule.

Where thick adhesions are present it naturally is im-

possible to separate them with a blunt instrument, and then they have to be shelled out like other small movable tumors such as lymphomas. Here the tumor is seized and pushed against the integument. An incision is made down to the sheaths of the gland and the blunt scissors finish the separation.

The prototype of such tumors is the hyperplastic lymphoma, or lymphoma as it is ordinarily called, and which consists in a hypertrophy of the gland. It either has a soft consistence if the cellular elements are hypertrophic, or a hard one if the reticular tissue between has proliferated.

In most cases a peripheral irritation can be found as their source of origin.

Inflammatory processes, ulceration, dermatitis, or eczema occasionally make neighboring glands swell.

At our department we have observed a typical cause for swollen glands which we have named "dirt inflammation." Those immigrants coming from barbarous districts and who regard even an annual wash to be an exorbitant and foolish luxury, carry Mother Earth in the most various shapes on all such surfaces of the body which are not covered by clothing. When they are scratching themselves—sometimes for very good reasons—they "*lege artis*" inoculate themselves with their antique and well-preserved filth.

As shown below, four cases of lymphadenitis had been undoubtedly due to the presence of the invasion of an army of "*pediculi capitis*," which was fought successfully by anointing the skull with blue mass. It was remarkable how quickly the size of the glands was reduced after the original cause was removed.

Only in case the irritation should be an internal one suppuration may set in, but generally the hypertrophied glands disappear as soon as the irritating process is healing.

But in a certain number of cases, even after the cause has been removed, the sequelæ in the shape of a lymphoma remain. If not too much time has elapsed, the therapy as described below may still be successful; otherwise extirpation is in order.

If no suppuration exists in or around the glands, I in extirpating them always strive toward union by first intention. If there is any sign of suppuration or even only softening in the center of the gland, I never sew up the wound. With few exceptions, so far as my experience goes, such conditions are apt to produce inflammation even after union by first intention had been obtained already. The scar opens somewhere, new incisions have to be made, scraping has repeatedly to be done, and the process, which under open treatment will have been ended in one or two months, may take even years or end fatally through the retention or the burrowing of pus.

In suppurative processes the existence of tuberculosis has to be borne in mind, this disease being of terrible frequency.

There is indeed no region where tuberculosis can so easily and so exhaustively be studied as on the neck, wherefore I may be allowed to make some more extended remarks concerning this subject.

Why tubercular glands of the neck are still called lymphadenitis scrofulosa, or scrofulous glands, is a conundrum to

me. The time has passed where tuberculosis would only be identified with an ulcerated process in the lungs.

Since Robert Koch made his great discovery it has been shown that there is scarcely a tissue in the body which could not become tubercular. Those diseases which so indefinitely are called scrofula are nothing but tubercular affections. Langenbeck, Volkmann, and Sayre, even before the antiseptic era, showed that there was such a thing as local tuberculosis, or, as it is practically expressed, surgical tuberculosis, and that by thorough resection in numerous cases a cure of these tubercular processes could be effected.

I do not see why the same principle should not be kept up in tubercular disease on the neck. As Whittier says, it may occur that from a caseous nodule, wherein the tubercular virus is locked up in temporary innocence, absorption may take place under favorable circumstances and a new outbreak of tubercular symptoms appear, the quantity of virus thus set free determining to a great extent perhaps the virulence of the symptoms. While the virus is locked up thus the disease would be latent, and when set free manifest itself.

From this recent point of view it is evident that the true tubercular nature of a gland can only be furnished by bacteriological investigations. But this can not be demanded from the general practitioner at all for practical reasons. Therefore, though I do not at all underestimate the great value of the microscope, I recommend for the purpose of determining a character of a doubtful gland a strictly practical method. I inject one hypodermic syringe of a saturated solution of iodoform ether into the substance of the gland, and repeat this about every third or fourth day. If after three or four injections the gland has decreased, I am sure that a cheesy process is going on in the center; in other words, that there is a tubercular focus. As soon as I have gained this conviction I immediately proceed to extirpation.

In fact, among a great number of cases treated thus I have always found that after an unsuccessful treatment by the use of iodoform injections the center of the gland was degenerated.

An early extirpation is of the same value as in the treatment of malignant growths. It is nearly certain that if the glands are taken out before the tubercular process has extended beyond the capsule, the neighboring glands, and hereby the whole system, will be prevented from successive infection. Without any exception, all the numerous cases which I have treated by early extirpation have been cured.

The time of observation, however, is extending over too short a period to have a clear judgment about the future results, but it is remarkable that all these tubercular patients have quickly improved in every way, and are all in a decidedly normal condition at the present time.

The main reason for having had such splendid results I see not only in making it a rule to make large incisions and to remove all suspicious tissue thoroughly, but especially in the open treatment of the wound. The tissues in which suppurating glands were imbedded have little tendency to union *per primam*, although I do not deny that it can be obtained sometimes.

But it seems to me to be essential that, after the removal, the whole operation field should be washed with an eight-per-cent. solution of chloride of zinc and then packed with iodoform gauze (fifty per cent.).

By uniting the edges of the wound and putting in one or more drainage-tubes we renounce—

1. The peculiar antitubercular influence of the iodoform, which can only be obtained if it remains in close contact with the tissues, as there is no such thing as an effect of iodoform by distance. The gauze which covers the united wound and the outer ends of the drainage tubes only prevents the decomposition of the wound secretion *in the gauze*, but is of no influence upon the process in the wound or cavity itself.

2. We renounce the absorbing qualities of the gauze, which is of great value. If packed, every little bit of the secretion must be absorbed by the gauze, and, no matter how large the cavity is, the pus must be *in the gauze only* and the wound surface must appear dry. Regarding the fact that dryness is the strongest enemy of bacteria, we may herein find some other point of importance. The drainage-tube is not so polite as to pull out the matter, as the public at large are inclined to express themselves. There is no magnetism of any kind in the dressing as to aspirate pus which rather passes a drainage-tube only if the cavity produces it *in abundance*; if, in other words, there is the first step to, or, most frequently, the real cause of a retention of pus.

My experience in former years has taught me sufficiently how much needless work I was doing in always using other antiseptics or other dressings, or in making innumerable scrapings or counter incisions, so that a year's time of treatment was nothing astonishing to me, while since I have adopted these principles the average time has amounted to five weeks. I may add that I have dispensed with irrigation entirely, because the wound surfaces look so dry and healthy that there is nothing left to be washed off.

3. We remove a valuable point of observation in closing up our operation field. Just as I make large incisions in order to see and not only feel every gland which I want to extirpate, I like to be able to look over the whole field during the after-treatment, thus being enabled to make corrections—for instance, when by mistake I have left diseased tissue.

It sometimes may occur that, shortly after the operation, the surface of the wound may be covered by a thick layer of badly granulating tissue, which shows the characteristics of tubercles. There the repeated use of chloride of zinc and sometimes renewed scraping is indicated. It is further remarkable that even very large incisions heal without as ugly a scar as presumably should be expected, this being probably due to the quickness of the healing process.

The dressings, as a rule, are changed every second day in the beginning; later on, only every third or fourth day.

After the cavity has been packed, a piece of "Neustrelitz sterilized moss" surrounds the entire neck. This moss, besides its excellent absorbing qualities (it soaks five times as much water as any gauze), has the great advantage



tage that, slightly dipped in water (or preferably in a bi-chloride solution), it adapts the shape of the body, so that it immobilizes like a plaster-of-Paris splint, over which it has the great advantage of being absorptive and of being much lighter.

The results obtained by me are in strong opposition to Fränkels, who maintains that the average time of the healing process in tubercular glands is from three to four years.

Regarding the undeniable fact that in all these cases, sooner or later, pulmonary or diffuse general tuberculosis could necessarily have taken place, I, with all due respect to my colleagues, am unable to conceive that many of them still advise building up the system first, and then do an extirpation, a view which shows a deep misunderstanding of the pathological cause of tubercular glands.

Internally I have administered Roncigno water in the summer time; pale Norwegian cod liver oil (never the emulsion) during the winter season. When even the slightest disturbance of the stomach was present, I prefer the syrup of the iodide of iron. At the same time every patient was advised to take a salt-water bath (one to five pounds of rock salt to a tubful) every day for years.

Treatment with Koch's tuberculin, as well as with Klebs's tuberculocidin, has repeatedly been tried, but with no satisfactory results.

*Report of Cases.*—1. Hyperplastic lymphoma, 57 cases (39 males, 18 females).

Among these were six under the age of three years, 24 between three and thirteen years of age, 20 between thirteen and twenty-five years of age, and 7 over twenty-five years of age.

All except 14 had been born or had mostly lived in the plains.

Twenty-six were born and mostly dwelling on the seashore; 14 came from Russia, 12 from Austria, 8 from Germany, 20 from New York city, and 3 from other countries.

Among 26 the glands were located on the left, among 21 on the right, and among 10 on each side. In 7 cases operations had already previously been performed.

In 14 cases the axillary and inguinal glands were enlarged also.

Twice the sterno-cleido-mastoid had to be cut through, and was united again after extirpation was completed.

Forty cases were cured by the use of Roncigno water, cod-liver oil, salt-water baths, and the application of iodoform collodium, changing with the green soap, the foam of which had remained over the glands during nighttime.

Fifteen were cured by the injection of iodoform ether. Some glands were injected between twenty and thirty times.

In 2 cases, where I failed to reach the center of the gland through the great nervousness of the patients, iodoform ether was distributed under the skin, where it produced slight gangrene—an occurrence which, through greater care, probably could have been avoided.

All patients complain of great pain caused by the injection. But this usually does not last longer than one or two minutes.

In 2 cases, which were of more than one year's stand-

ing already before they underwent treatment at our department, repeated iodoform injections produced decrease of the glands, but could not make them disappear entirely, wherefore I extirpated them.

In 9 of these cases a tubercular history could be made out.

It was of interest that in most of these cases an original cause for the glands could be found. Three cases were depending upon dermatitis; 4 from eczema, 6 from inflammatory and 4 from ulcerative processes; 5 had followed scarlet fever, and 6 diphtheria. In 5 cases adenoid growths of the nasopharyngeal space and in 4 pediculi capitis were found; 8 cases probably were inoculated by dirt. In such cases the use of green soap is of double value. In 12 cases the original cause could not be found.

As far as the aetiology is concerned, the term "scrofula" was found to be practical so far as it covers our own ignorance of many points about the patients.

*Suppurating Glands* (irritation diagnosed).—Nineteen cases, among which 6 were dependent from eczema, 5 from dermatitis, 4 from inflammatory and 4 from ulcerative processes (11 males, 8 females).

All of them were cured by incision, scraping, and packing with iodoform gauze.

Among them were 6 children below three, 7 below thirteen, and 6 individuals over thirteen years of age.

Fifteen were born or had always lived on flat land (13 on the seashore), 5 came from Russia, 4 from Austria, 3 from Germany, 6 from New York city, and 1 from Switzerland.

Ten were located on the left, 7 on the right, and 2 on each side. In 4 cases previous operations had been performed. In 4 cases the axillary and inguinal glands were slightly enlarged.

*Suppurating Glands* (probably tubercular).—One hundred and twenty-four cases (81 males, 43 females). Among them were 44 up to three years of age, 28 between three and thirteen, 24 between thirteen and twenty-five, 17 between twenty-five and fifty, and 11 over fifty.

One hundred and fifteen of them were born and had mostly lived on the flat land.

Only 19 were born or brought up in the mountains, 82 were born and mostly residing on the seashore, 31 were born in Russia, 22 in Austria, 26 in Germany, 39 in the United States (New York city), and 6 in other countries.

Fifty-eight were located on the left, 49 on the right, and 17 on each side.

In 28 cases previous operations had been performed.

In 39 cases the axillary and inguinal glands were enlarged also.

In 29 of these cases where the suppurating process could not be diagnosed by me beforehand, iodoform-ether injections had repeatedly been made without success before extirpation was done. Five times the sterno-cleido-mastoid had to be cut through, and was always united again after the extirpation was completed. The internal jugular vein was ligated before separation twice; once the ligation was temporary only.

In 34 cases three or less glands had to be removed, in

55 between three and six, in 23 between six and ten, and in 12 more than ten (in some cases between 30 and 35) glands had to be extirpated.

In 21 cases I had to repeat extirpation by removing neighboring glands, which were not noticeable at the time of the operation, or which had been overlooked by me.

In 63 cases the family history gave me the suspicion of tuberculosis. Seventy-four patients had frequently suffered from bronchitis, pneumonia, pleuritis, and chlorosis.

All the patients showed an anæmic appearance and were generally thin and slimly built. Twenty-nine were rachitic at the same time; thirty-one suffered from chronic rhinitis. Adults complained of great weakness and loss of appetite as a rule.

The operation was always performed under an anæsthetic. Adults were anesthetized with ether, children below six years of age with chloroform.

Two patients (see history) died; nineteen are still under treatment and are doing well.

The following few cases may serve as an illustration:

CASE I.—Sarah R., sixteen years of age, thin and overgrown, born in Russia, flat land. Parents alive and well. (Elder brother operated on by me in summer, 1892, for caries clavicular. Recovery.) Menses since her thirteenth year.

Five years ago about eight subauricular suppurating glands had been removed by me. Rubber drainage. Recovery after eleven months. In December, 1891, after having been well ever since the last operation, the glands of the same region became enlarged. Iodoform ether was injected immediately and recovery followed after seven injections; at the same time internal treatment was given.

In January, 1893, she presented herself again, suffering from an enlarged gland in the same region. Iodoform ether, injected three times, made it disappear.

CASE II.—Fred L., nineteen years of age, tall and thin, born in Germany, flat land; family history good. Since five months a slow-growing painless tumor has appeared in the left upper trigonum. Treatment by several gentlemen consisted in iodine preparations externally and internally. Sent to me with the diagnosis of fibroma. Patient looks very anæmic, shows loss of appetite, great weakness. Temperature  $101^{\circ}$ , pulse 106. The very hard non-movable tumor of goose-egg size yielded pus by aspiration. Vertical incision; scraping and packing. Perfect recovery after two months.

*Diagnosis.*—Suppurative melting of gland or glands, forming a so-called cold abscess. (Patient is reported to be well up to date.)

CASE III.—Josef N., seventeen years of age, tall and thin, born in Russia, flat land; six years in the United States; family history good. Three months ago he noticed a small, soft tumor in the right middle of his neck, which grew slowly and without causing any pain. For several months, without any effect, medical treatment by his house physician, who had sent him under the diagnosis hydrocele colli, and had told him that a few injections would cure him. Examination at our department, May 3, 1892, revealed a fluctuating tumor of hen's-egg size at the right upper trigonum. A part of the same could be emptied. No mobility was present; but the aspiration yielded pus, wherefore the diagnosis of a cold abscess probably caused by broken-down gland tissue was evident. Scraping and packing within ten weeks cured the patient.

CASE IV.—Agathe S., sixty-five years of age, widow; stout; born in Germany, flat land; in New York city for the last thirty years. Family history good. Of her six children,

two died early—one from meningitis, another one from pneumonia. She has always been well till nine months ago she noticed a painless tumor in the left supraclavicular region which was growing slowly. Slight pain appeared during the last two months, variously treated before. Sent with the diagnosis carcinoma.

The patient was first seen at our department on April 17, 1892, and looked cachectic. Great debility; temperature,  $101^{\circ}$ ; pulse, 90. The clavicle in its whole length represented the base of a hard tumor of the size of the head of a new-born child, which extended in an elliptic shape up to the angle of the inferior maxilla. Turning the head is very painful; in a quiet state only temporary pains are experienced. No fluctuation. Aspiration on three different points yielded blood. No mobility. Although there were many points in favor of a diagnosis of carcinoma, I suspected tubercular glands for the following reasons:

a. In the case of carcinoma of nine months' standing some neighboring glands ought to have been infiltrated.

b. The surface of the tumor would have been less even.

The operation, started by a trap-door flap incision, showed eleven glands, nine of them in a state of cheesy degeneration. Scraping and packing cured the patient within ten weeks. She has remained well up to date.

CASE V.—Elizabeth J., fifty-seven years of age, housewife; small and thin; born in Germany (on the hills); in New York since forty-seven years; family history favorable. Among her four children one had died from bronchitis at an early age. She herself had suffered from pneumonia eleven years ago. Eight months ago she first noticed a small, painless swelling in the middle of her right neck. It increased slowly in size. For the last two months it once in a while felt painful. She had treated herself with linseed poultices until she was told that she was suffering from "cancer," and was sent to our department for removal.

On February 13, 1892, when she first showed up, she looked cachectic. Debility and loss of appetite were present. The trigonum cervicale superius is occupied by a hard tumor of the size of a man's fist. Slight mobility is present. No fluctuation. Turning of head is almost impossible. Temperature,  $100.5^{\circ}$ ; pulse, 94. Aspiration, repeated three times, yields blood. No neighboring glands are affected. The well-defined tumor shows a smooth globular surface.

*Diagnosis.*—Infiltration caused by tubercular glands.

Removal was quite difficult. After a T-shaped incision was made, the sterno-cleido-mastoid was cut through and the internal jugular vein ligated before being cut. Open treatment. Perfect recovery after three months. Patient was reported to be well only a few weeks ago.

CASE VI.—Anton B., twenty-one years of age; tall and thin; born in Bohemia (flat land); in United States since two years; family history unknown. Since four years suffering from "suppurative glands." He reports that for quite a length of time in Bohemia he was treated with the dried-up faces of a cow in the shape of a poultice, moistened with lukewarm water. On December 9, 1892, when he first came under our observation, he looked anæmic; was quite weak; temperature,  $101^{\circ}$ ; pulse, 106. The submaxillary glands from one angle of the inferior maxilla to the other were infiltrated, and averaged in size from a bean to a peanut. No less than seventeen fistulæ were spread over the infiltrated region, and, in fact, increased the circumference of the whole neck to such size as if it was surrounded with heavy padding.

*Diagnosis.*—Tubercular glands of neck, infiltration of connective tissue, retention of pus, and disfiguring scars around the fistulæ.

Incision from one angle of the jaw to the other; excision of all scar tissue; removal of nineteen glands; scraping of several pockets, where undoubtedly glands had previously broken down. Next day temperature, 104.5°; pulse, 130. As retention of pus was suspected, the dressing was changed; nothing extraordinary was found. One day later, as the fever symptoms continued, the dressing was changed again. This time a swelling on the posterior margin of the left sterno cleido-mastoid at its insertion was noticed. An incision revealed a suppurating gland, which, unfortunately, had been overlooked at the operation.

The patient improved rapidly. A month later the whole left side of the neck was closed. Two cavities on the right side were still suppurating, and had been scraped twice more. On January 14th a chill; renewed swelling of four submaxillary glands, which were removed. Rapid improvement and closure of all the cavities followed with the exception of one, which was repeatedly cauterized with an eight-per-cent. solution of chloride of zinc. Patient is still under treatment, but has gained twenty-four pounds, is strong, has normal temperature and good appetite.

CASE VII.—Benjamin K., aged twenty, of medium size and thin; born in Russia, flat land; family history good. Patient has always been well until two years ago, when he started to form a suppurating gland, as he says, right below the left angle of the inferior maxilla. Extirpation was done twice (for the last time at a hospital of this city).

The wound had been sewed up in its entirety the first time. After the second operation it had been drained by a rubber tube. After the first time the edges had sloughed; the second time, eight months ago, a fistula had remained, which secreted yellow pus.

On February 11, 1893, when he first underwent treatment at our department, he looked anæmic, he had a good appetite, was not feeling very bad, and had a normal pulse and temperature.

The operation consisted in the removal of all thick scar tissue and of the hardened bed of a macerated gland, which could be lifted up with a sharp spoon. Packing. Perfect recovery already three weeks after. (Patient recently has shown symptoms of renal calculi.)

CASE VIII.—Gussie W., aged five years, tall and thin, very anæmic, born in New York city. Since four months, formation of a painless tumor in the right subauricular region. Treatment expectant by several gentlemen.

On August 10th, when first seen, she showed two confluent soft tumors, the lower one of goose-egg, the upper one of hen's-egg size. Fluctuation was well marked, temperature normal, pulse 106. Through a long incision two tablespoonfuls of yellow pus were evacuated; below the pus cavity seven infiltrated glands were removed. The emaciated patient improved rapidly until, four weeks later, she was taken sick with croupous pneumonia. It seemed to me that during the pneumonic process the cavity was closing quicker than before. Perfect recovery from the pneumonia two weeks after its onset. At the same time the closure of the cavity was perfect. The treatment of the cavity had been kept up just the same during the pneumonia. (Has been well up to date.)

CASE IX.—William N., aged fourteen years, tall and thin, born and brought up in New York city. Father died from consumption in his thirtieth year. (Only child.) Four years ago he had suffered from pneumonia. About a year ago he noticed at his right supraclavicular region a small, painless tumor, which grew slowly. On April 4, 1892, when first seen, he looked anæmic; complained of great debility and loss of appetite. For the last three weeks the swelling had been painful; temperature, 102°; pulse, 116. On the right side the subauricular, sub-

maxillary, and supraclavicular glands together composed a tumor of the size of a new-born child's head. No fluctuation. On the left side the submaxillary glands were also enlarged.

A T-shaped incision was made on the right side along the posterior margin of the sterno-cleido-mastoid, and fourteen glands, all being in a state of cheesy degeneration, were removed under great difficulties. Underneath the supraclavicular glands an abscess, containing about two tablespoonfuls of yellow pus and extending about an inch below the inferior margin of the clavicle, was opened.

At the same time four degenerated glands, situated at the left supraclavicular region, were removed. The patient was doing well after the operation until, three weeks later, he became feverish and delirious. Repeated vomiting set in, and facial paresis pointed to a cerebral process. Five weeks after the operation, death from meningitis.

CASE X.—Amanda K., aged fifteen years, tall and very thin, born and educated in New York city, family history favorable. Her sister, aged six months, suffers from several lymphomas of the neck. Menstruated first in her thirteenth year. She has not felt well for the last year, and has been treated for chlorosis during six months. Several glands, as the patient reports, had been observed at the middle of her neck for years, and had never been treated. Six weeks ago they commenced to swell, and caused considerable, but only temporary, pain. Two weeks ago her family physician made an incision, which was followed by short relief. Then her general condition became worse, and swellings were observed.

On October 9, 1892, when she was seen for the first time, she appeared very anæmic and weak; temperature, 103°; pulse, 130.

In the left supraclavicular region a hard tumor of goose-egg size. No mobility or fluctuation. In the upper trigonum of the same side was a small opening filled out by a rubber drainage-tube, through which, on pressure, about a teaspoonful of grayish pus could be emptied.

The operation consisted in the extirpation of seven more or less cheesy glands and of some infiltrated tissue, and in scraping the cavity, which had been opened previously.

Great relief and improvement of general condition followed, but four weeks later some supraclavicular glands of the other side commenced to swell; at the same time the temperature, which never had risen above 100°, went up to 103° again. Extirpation was declined. Five weeks after the operation the cough, which had for a year been present to a slight degree, became frequent and vehement. The house physician reported to me later that, two months after my operation, the patient died from phthisis pulmonalis.

*Tuberculosis of Glands, Clavicle, and Sternum.*—Moses B., aged thirty years, middle-sized and very thin, born in Russia, four years in United States (New York city).

For three years he has been suffering from suppurating glands of the whole right region of the neck. Incisions and treatment by poultices were tried in turn.

On February 27, 1892, when he was seen first, he was showing the characteristic appearance of a consumptive.

Temperature, 105.2°; pulse, 118; great debility; loss of appetite; night-sweats.

The submaxillary glands were swollen; on the supraclavicular region, extending from the acromial joint to the opposite left sternal joint of the clavicle, a tumor of the size of a new-born child's head was noticed. In the middle of the right clavicle and on the right sterno-clavicular joint fistulae secreting serous pus had been established. The probe revealed bare bone on the posterior surface of the clavicle as well as of the manubrium sterni. Operation consisted in extirpation of four de-



generated submaxillary and nine broken-down supraclavicular glands.

A small portion of the clavicle was found to be carious and therefore chiseled away. The posterior surface of the manubrium sterni could only be approached after having dissected the sterno-hyoid muscles. Now the upper fourth of the sternum could be made out to be denuded of its periosteum. The grayish-looking bone portions were chiseled away and the large cavity packed. Improvement followed. Three weeks later, when the temperature rose to 104°, an abscess below the acromio-clavicular joint was opened.

Patient is doing excellently, although the large cavity above the sternum has not been entirely closed. This case shows the advantage of the gauze very characteristically, as a drainage-tube inserted behind the sternum surely, after simple mathematical laws, could not have driven the discharge upward.

**Malignant Lymphoma.**—Renata L., aged thirty-one, married; two healthy children; born in Austrian highlands; twenty-one years in United States (New York city); family history good. Two months ago she noticed in the left supraclavicular region a small lump which grew rapidly.

On May 3, 1892, when she first made her appearance, she showed a tumor of goose-egg size right above the clavicle, another one of the same size in the upper trigonum, and a third one before and slightly overlapping larynx and trachea. The patient made a healthy impression, showed normal temperature and pulse, felt strong, and had a good appetite. The axillary as well as the inguinal glands were slightly swollen. As the patient especially declined an operation on account of her good general condition and the entire absence of pain, she was given Roncegn water in doses of six tablespoonfuls *pro die*. The tumors at the same time were injected with three drops of Fowler's solution every other day for three weeks, a procedure which was always followed by considerable pain.

As no decrease in size of the tumors could be obtained, the patient left our department and was later reported to me as having died at the end of September of the same year.

(To be concluded.)

**The New Jersey Academy of Medicine.**—At the annual meeting, held on Wednesday, the 19th inst., officers were elected as follows: President, Dr. John D. McGill, of Jersey City; vice-presidents, Dr. Robert F. Burdidge, of Newark; Dr. R. F. Chabert, of Hoboken; and Dr. A. K. Baldwin, of Newark; recording secretary, Dr. John J. Broderick, of Jersey City; corresponding secretary, Dr. William Perry Watson, of Jersey City; treasurer, Dr. Lott Southard, of Newark. The next meeting will be held in Newark on Wednesday, May 17th.

**The Buffalo Academy of Medicine.**—At the next meeting of the Surgical Section, on Tuesday, May 24, the subject of intestinal obstruction is to be considered. Dr. Henry R. Hopkins will speak of its symptomatology and medical treatment, and Dr. Roswell Park will treat of its surgical treatment. Dr. Matthew D. Mann and Dr. Charles G. Stockton will take part in the discussion.

**Mount Sinai Hospital.**—Dr. Charles H. May has been appointed adjunct visiting ophthalmic surgeon.

**The Death of Dr. Edwin T. Doubleday** occurred very suddenly on Sunday, the 23d inst. Dr. Doubleday was a graduate of Bellevue Hospital Medical College, of the class of 1882, and had served his time on the house staff of the New York Hospital.

**The Death of Dr. Henry Schweig** took place on Wednesday, the 19th inst., as the result of general paresis, it is announced. The deceased was a graduate of Bellevue Hospital Medical College, of the class of 1879, and was recognized as a promising laryngologist.

## THE NEW YORK MEDICAL JOURNAL, *A Weekly Review of Medicine.*

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### THE STRYCHNINE TREATMENT OF SNAKE-BITES.

In our issue for March 11th we published a brief note on the strychnine treatment of snake-bites as it is carried out in Australia. We founded our statements on a number of articles that had appeared in the January number of the *Australasian Medical Gazette*. In the March number of the same excellent journal there is an article, justly entitled *A Remarkable Case of Death from Snake-bite*, by Dr. D. Skinner, of Beechworth, in whose practice the case occurred, and Dr. August Mueller, of Yackandandah, Victoria, the great promoter of the strychnine treatment, who saw the patient in consultation.

It appears from Dr. Skinner's account that a girl, seventeen years old, of excellent physique and apparently in perfect health, stepped out of her bath at about 6.30 P. M. on January 29th, and experienced a sharp pain in the second toe of her right foot. She perceived that the toe was bleeding a little, and she began to feel faint. To dispel the faintness, and at the same time to wash the blood from her toe, she stepped back into the bath; but, finding herself growing worse, she partially dressed herself and attempted to regain her room, when her collapsed condition was noticed by some of the members of the family, and they immediately carried her up stairs to bed. She was then almost speechless, her surface was cold, and her face and lips were bluish. It was ascertained about an hour subsequently that she had realized at the time that her toe had been bitten by a snake, but she did not mention the fact until she was questioned about it. "The shock to the nervous system and subsequent collapse," says Dr. Skinner, "appeared to have deprived her of any recollection of the occurrence until it was revived by the mention of the snake." The nature of the wounds on the toe was not obvious, and she had some time before been subject to fainting fits; so it is no wonder that her peril was not at first appreciated. However, she was caused to swallow moderate doses of brandy, and, after vomiting some blood-stained fluid, she rallied considerably. It was at about this time, an hour after the infliction of the bite, that a member of the family saw a half-grown tiger-snake, about thirty inches long, issuing from the bath-room, and it was while he was killing the reptile that the truth dawned on him. Now the usual domestic measures were resorted to. They included the application of a tight ligature above the ankle and another above the knee. The punctures were then probed with the point of a knife and well sucked. A messenger was sent to a neighboring homestead for a "hypodermic strychnine case"—an article that seems to have come into widespread popular use in Australia since the reports of the success attending Dr. Mueller's

treatment have come to be generally known—and another messenger was sent to bring Dr. Skinner, who, being twelve miles away, did not reach the patient's home until about 10.30 P. M., four hours after the infliction of the bite.

On his arrival, Dr. Skinner found the young lady in a normal condition, except that her face was somewhat flushed and expressive of a moderate degree of suffering. The ligature above the ankle was giving her great pain, and her only desire was to have it removed. The one above the knee had been taken off some time before, owing to the intolerable suffering it had caused. On the bitten toe there were found, not "the classical two punctures," but three somewhat irregular marks—a longitudinal scratch an eighth of an inch long over the root of the nail, a well-marked puncture in the middle of a bluish, rounded elevation over the distal joint, and an almost invisible puncture in a similar swelling over the second joint. Dr. Skinner cut deep into all the punctures till they bled freely, and had the sucking continued for twenty minutes more. He removed the remaining ligature, the one above the ankle, and gave a small dose of brandy. In less than half an hour the patient appeared perfectly comfortable and inclined to sleep. At midnight the doctor was called on account of a rather free oozing of blood from the wounds. He estimated that three or four ounces of blood had been lost, and it was still welling out freely, showing no tendency to coagulate. The bleeding was readily controlled by means of pressure and a dry dressing. The patient's general condition was now all that could be desired, and two hours later Dr. Skinner left, feeling assured that she would be "herself again" by morning. On the following afternoon, however, he was notified by telegraph that at midday she had been somewhat feverish, and had complained of some stiffness in the neck and slight difficulty in swallowing. This was eighteen hours after the bite, and it was hard to believe that the poison was beginning to act after that lapse of time, but in the evening he learned that the unpleasant symptoms were persisting, and he saw the young lady again soon after eight o'clock, twenty-six hours after the infliction of the bite.

She then had dyspnoea, her articulation was somewhat interfered with, her tongue was not under complete control, and her pupils responded to light with rather abnormal readiness. She had taken a fair amount of liquid food, with small quantities of wine and brandy. She had passed no urine or feces since the accident. Defective elimination was held to be the cause of the tardy symptoms of poisoning. Six grains of calomel were given, to be followed by a seidlitz powder, also a diuretic mixture consisting of solution of ammonium citrate, aromatic spirit of ammonia, and tincture of digitalis. These remedies did not act. At 8.30 P. M. a twentieth of a grain of strychnine sulphate was administered subcutaneously. Within ten minutes the speech, swallowing, and breathing became nearly normal, and there was no return of the respiratory trouble until 5 A. M. At 3 A. M. she passed six ounces of urine, which, on his return home, Dr. Skinner found to be acid, of the specific gravity of 1.028, of a dirty-brown, muddy look, and containing a third of its volume of albumin. At 5.30 A. M. a fifteenth of a grain of strychnine was

injected. This gave relief as before, but for a much shorter time. At 7 A. M., however, the patient seemed fairly comfortable, and Dr. Skinner left her for a few hours, having directed a repetition of the injection in case the symptoms returned without muscular twitching. The urine was now found (in the same specimen before examined chemically—the only one passed until the patient died) to contain an abundance of shrunken red blood-corpuscles, a few blood casts, numerous granular and cloudy epithelial casts, and general epithelial debris.

At 1 P. M. Dr. Skinner saw the patient again, this time with Dr. Mueller. Two strychnine injections had been given in the mean time, of one fifteenth and one twentieth of a grain respectively, but their results had grown less favorable. There was now extreme dyspnoea; the speech was jerky and monosyllabic; and deglutition was very painful and difficult, fluid finding its way into the larynx and lungs. The pulse was 110, becoming somewhat thready; the mind was clear and bright. Five injections of a tenth of a grain of strychnine were given, one every half-hour from 1.30 to 3.30 P. M., but their favorable action grew less and less. Soon after the fifth of these injections a weak convulsion took place and breathing ceased. The heart's action continued for about ten minutes more, and artificial respiration was resorted to, but without success. Death took place in forty-five hours after the infliction of the bite, twenty-seven hours after the onset of special symptoms, and nineteen hours after the first strychnine injection. In all, about four fifths of a grain had been injected.

"The remarkable features of the case," says Dr. Skinner, "are these: First, the complete recovery from the initial shock and collapse without any special treatment; second, the failure of elimination, owing to toxic nephritis; third, the slow and fatal poisoning of nerve centers, for which special treatment proved futile. Moreover, a careful study of this case, the slow march of which afforded unusual opportunities for observation, is capable of throwing considerable light on several vexed questions in connection with snake-bite.

"1. To those medical authorities that are in the habit of decrying the lethal powers of Australian snakes the perusal of such a case will give food for reflection. A half-grown tiger-snake biting a healthy subject under favorable circumstances (*i. e.*, favorable to the snake) produced a fatal result to which neither fear nor alcoholism contributed.

"2. The classical description of a double puncture does not necessarily apply to every case. Here we found three marks in the middle line of the upper surface of the toe. Underneath, after death, a small ecchymosis was found opposite the uppermost mark. We can account for this only on the supposition that the snake did not strike but actually chewed the toe, as appeared to have been the case in one of Dr. Mueller's recorded cases. This would give ample time for the injection of all the venom in its gland.

"3. The mode of action of snake venom is here fully illustrated. It was first a general depressant of all the nerve centers, voluntary and involuntary. Afterward it appears to have acted on the blood, diminishing its coagulability, and on the

renal epithelium, destroying its vitality and causing it to be shed in large quantities; and finally it exercised a selective influence on the adjacent centers of respiration and deglutition, and by paralyzing them brought about death by asphyxia.

"4. I consider that this case will help us to a fairer appreciation of the true value of the strychnine treatment than will any number of sensational cures. It proved to be an extraordinary stimulant to the special nerve centers attacked by the venom, and under more favorable circumstances might doubtless have helped to sustain life till the poison was got rid of; but on the absolute failure of elimination its stimulative properties gradually faded.

"5. At one stage of the treatment the use of pilocarpine suggested itself, but was considered too risky in view of possible heart failure; and the use of strychnine had the sanction of much greater authority. I am bound to say, however, that in a similar case, with the same kidney complications, I would unhesitatingly use it, probably in combination with strychnine and alcohol."

Dr. Mueller's comments are as follows:

"The symptoms presented by Miss D. when I first saw her, two hours and a half before she died, were dyspnea and dysphagia, together with complete blockage of the kidneys, causing urinary changes of an unusual kind. The parietic condition of the respiratory and glossopharyngeal centers, which at any moment threatened to culminate in paralysis, were unlike anything I have ever observed in tiger-snake-bite, but presented a complete facsimile of the picture, so graphically drawn by Dr. Wall, of the victims to cobra-bite. Vincent Richards, writing some years ago in the *Australasian* journal on Indian and Australian snakes, called our tiger-snake the Australian cobra, but dwelt principally on its great similarity to the cobra de capello in appearance. That this external likeness of the two reptiles could extend in rare cases of tiger-snake-bite to an absolute identity in the effect of their poison, and that even a small, half-grown tiger-snake could produce the formidable symptoms of cobra poison, was not known at the time, and Miss D.'s is the first case to place this interesting fact on record. The small, insignificant-looking animal, barely thirty inches long, which was shown to me as having inflicted the fatal bite, could not even have inserted the poison fangs on the back of the toe to their full length. The quantity of poison it imparted can, therefore, have been but small, and this probably accounts for its insidious, slow, and deceiving action. It must, however, have been absorbed before ligatures were applied, for it appears to have spread over all the motor nerve centers in the usual rapid manner of tiger snake poison. Being too small in quantity to maintain its hold on them, it was thrown off in a few hours, then—strange to relate—remained inert for hours, and, stranger yet, appeared again on the following day with a fatal hold on the centers it touches but slightly in its usual course, as if by some mysterious process it had, on its reappearance, been converted into cobra poison. In this new rôle another symptom, in addition to those mentioned, appeared conspicuously. Coma was completely absent, the action of the

cortical centers, usually suspended in tiger-snake bite, was painfully intact. Even a short time before her death, when articulation had been reduced to a mere whisper, the young lady conversed with her friends by her fingers, in the manner of the deaf and dumb. Finally, to complete the picture, paralysis was ushered in by convulsions, exactly as it is in cobra bite.

"The question why the antidote, after acting satisfactorily at first, failed toward the end, admits of several answers, all of which, however, at our present state of knowledge, must necessarily be hypothetical. The most probable one is that, after the nerve centers have been for many hours under the influence of the poison, structural changes take place in them which preclude their being roused into normal action by the antidote.

"That during the period of apparent recovery, and even after the first successful injections, the snake poison would have been thrown out and given no further trouble if the kidneys had not been blocked at an early stage, can scarcely admit of doubt; but it is very doubtful whether, under such circumstances, an appeal to the skin by pilocarpin can be effectually carried out, for the blood generally recedes from the surface and accumulates in the distended large veins of the abdomen, the skin becoming cold and blanched. I must also express my doubts as to the condition of the kidneys, disclosed by the examination of the urine, having been acute nephritis. There was no pain, at least none complained of, and it appears to me more probable that the complete blockage of the kidneys was brought about by the process known as diapedesis.

"It has been shown by Feoktistow that when the mesentery of an animal is sprinkled over with a two-per-cent. solution of snake poison the capillaries become dilated at once wherever they are touched by the poison, and immediately blood-corpuscles pass through them, together with more or less plasma. If during the passage of the poison through the kidneys the same process takes place in exceptional cases, the appearance of shrunken red blood-corpuscles, blood casts, and epithelial débris in the urine would necessarily follow, together with a complete blockage of the kidneys and an abundance of albumin in their scanty secretion, which, under these circumstances, would largely consist of blood plasma. That actual hematuria takes place here, as in Indian viper-bite, was hitherto unknown to me, but recently a fatal case of tiger-snake-bite has been reported to me of a girl of nine years who voided *per urethram* a pint of almost pure blood, and whose kidneys appear to have also been blocked at an early stage. These cases precluding elimination and all chance of recovery are fortunately rare."

This case is indeed remarkable from more than one point of view—most of all, perhaps, by its illustration of the reviving power of strychnine in cases of depression of certain nerve centers. We know not how close a similarity of action there may be between the venom of Australian snakes and that of American serpents, but the strychnine treatment of the victims of venomous bites seems to us worthy of trial elsewhere than in Australasia.



## MINOR PARAGRAPHS.

### ANOTHER POLLUTED WATER SUPPLY.

THE Ridgewood water of Brooklyn is reported to be not above suspicion. In its early history that water had the reputation of being an exceptionally pure article, but during recent years the encroachments of an increased population at many points along its watershed, as well as some other causes, have tarnished that reputation. We find in one of the Brooklyn papers a communication from Dr. G. G. Hopkins, which gives public warning to the authorities of that city that they have a very important duty before them in the matter of a thorough policing of the Ridgewood watershed. He says he does not wish to play the part of an alarmist, but he is strong enough in his knowledge of the facts, he thinks, to predict that, if harm by reason of cholera reaches Brooklyn next summer, it will come by way of a neglected water supply. He says: "But our greatest danger lies in our water supply; yet there is hardly another city in the Union that can so readily protect that. Here we need an intelligent corps of watchful inspectors. If the people generally could see the filth that enters one of the streams that supply part of our water, they would wonder how it is so good. You can see any day the village cattle passing through this stream, and ducks and geese swimming in it and not leaving it in a very inviting state. Yet all this can be easily remedied, and should be at once. I am not desirous of raising a panic. I only hope to avert one during any part of this summer. There is no question that, should the proper precautions be taken, even should cholera get a footing in this country, Brooklyn can run very little risk if she will only prepare to starve it out by giving it as little as possible to feed upon. To this end I would like to see the city place in the hands of the health board at least \$500,000 for the carrying out of some plan that will make cholera an unwelcome guest here, instead of a welcome one, as she will be if the city is left as it is."

### THE TREATMENT OF PUERPERAL CONVULSIONS.

M. CHARPENTIER (*Gazette des hôpitaux*, January 21, 1893; *Sheffield Medical Journal*, April, 1893) closed a recent communication to the Paris Academy of Medicine with the following conclusions: If during pregnancy there is albumin in the urine, however small the amount, an absolute and exclusive milk diet should be insisted upon from the start. It is *par excellence* the preventive treatment of eclampsia. If a convulsion occurs and the patient is vigorous and very cyanotic, she may be bled to the extent of sixteen ounces, and then chloral and milk given as soon as possible; if she is not so strong, if the cyanosis is less marked, and if the attacks are not so frequent, chloral alone is enough. Labor should be allowed to begin spontaneously, and, if possible, it should be allowed to terminate without interference. If it is delayed by feebleness of the uterine contractions, the forceps may be applied or the child turned if it is living; if it is dead, craniotomy may be resorted to. Before instruments are used the os uteri should be completely dilated or dilatable. It is only in exceptional cases, where medicinal treatment has failed, that labor should be brought on. The Cesarean operation and *accouchement forcé*, especially by deep incisions into the cervix, should be absolutely rejected.

### THE ARTIFICIAL TINTING AND FLAVORING OF FRUIT.

It appears from an article in the *Journal d'hygiène* for February 16th, summarized in the *Union médicale* for April 6th, that various fruits are colored on the surface or in their substance

to suit the fancy of purchasers in France. For example, strawberries that are unripe are given a fine red color by means of a fuchsine preparation; ordinary oranges of poor quality are made to pass for blood-oranges by injecting roccelline into their pulp; and melons are rendered of a fine orange color by injecting a solution of tropæoline, and at the same time aromatized with an artificial melon essence. At a certain dinner party the pears had the outward look proper to pears, but, on being cut open, displayed on the section the national colors of France. Many of the substances made use of in these pranks may be harmless, but it seems to us that the practices in question are apt, if unchecked, to lead to dangerous ventures.

### COMPRESSION OF THE BRAIN.

At the seventh meeting of the French Congress of Surgery, reported in the *Mercure médical* for April 5th, Dr. Van Stockum presented an experimental study of what may be called the mechanism of the condition known as compression of the brain. His conclusions were as follows: The general symptoms are not caused by increased tension of the cerebro-spinal fluid; they depend on disordered circulation in the medulla oblongata, not due to a mechanical cause, but having their point of departure in the cerebral cortex. The cortex, irritated and rendered anemic by the foreign body that is compressing it, sets up an embarrassment of the cerebral circulation by virtue of containing a vaso-motor center acting specially upon the brain.

### PRENATAL BAPTISM ACCORDING TO GREGORY.

THE *Province médicale* for April 1st quotes from a letter said to have been written by Diderot to Mlle. Volland in 1760, recounting that a certain English physician named Gregory, being convinced that in the next world it would go hard with any child that had died without having undergone sprinkling of its head with cold water, accompanied by a certain verbal formula, always baptized the child *in utero* in cases of difficult labor. Having first pronounced the formula "Child, I baptize thee," he filled his mouth with water, then applied it suitably (*appliquait convenablement*), and squirted the water as far as he could. As he wiped his lips with a napkin he was wont to remark: "It takes but the hundred-thousandth part of a drop to make an angel." We are not told the Gregorian method of dealing with a difficult case of breech presentation.

### ANTINERVINE.

THIS villainous name has been given to a mixture of acetanilide, salicylic acid, and ammonium bromide. Dr. Reich has submitted before the Medical Society of Buda-Pest (*Union médicale*, April 4, 1893) certain conclusions as to its action. He finds that it acts more rapidly as an antipyretic than antipyrine, more rapidly than sodium salicylate, but less rapidly than acetanilide. Doses of less than seven or eight grains do not lower the temperature so much as antipyrine or sodium salicylate, but larger doses reduce it more decidedly. Even in this respect, however, it is inferior to acetanilide. The duration of its antithermic effect is twice as great as that of antipyrine, almost as great as that of sodium salicylate, but less than that of acetanilide. If Reich is correct in all this, it is difficult to see what "antinervine" has to recommend it.

### LOSS OF LIFE BY COLD IN THE EAST.

THE almost unprecedented occurrence of deaths by freezing in the torrid zone was one of the features of the past winter in

the far East. During the rigorous weather of January of this year there were reported as many as four hundred deaths by exposure and cold at Canton; also a considerable number at Macao. It is estimated that thousands perished in the southern belt of China during one memorable week in January. Dr. E. P. Thwing, formerly of Brooklyn, now of Canton, has stated that the mercury showed a drop of 90° F. in the open air at his residence. Although nine degrees below freezing was the lowest reading on the thermometer that was observed, yet there was a velocity of the wind and a fall of sleet that added to the afflictions of the people, whose houses and dress are fashioned to meet the demands of heat only. In some districts it became needful for the charitably disposed to distribute clothing and hot soup in order to assist in saving the lives of the poor.

#### THE CARE OF THE CHOLERA PATIENTS AT HAMBURG.

The deaconesses of Kaiserwerth, who volunteered for service at Hamburg during the height of the cholera epidemic, have all returned alive to their institution. Besides a sister of a person taken sick who went to Hamburg quite early, there also went, first eight, then six, to that city of pestilence and panic. One of their local physicians deplored their action, it is said, and predicted that none of the fourteen would see Kaiserwerth again. But, fortunately, these ladies were all spared from any of the dreaded results of exposure except those incident to constant responsibility, vigils, and night-work.

#### THE AFTER-EFFECTS OF CHLOROFORM.

LUTHER's observations of the use of chloroform as an anæsthetic in Brennecke's gynecological clinic in Magdeburg (*München medicinische Wochenschrift*, 1893, i; *Centralblatt für Chirurgie*, April 8, 1893) go to show that the disagreeable after-effects, such as nausea, vomiting, jaundice, etc., are always the accompaniments of a morbid condition of the kidneys, as shown by the presence of albumin and casts in the urine, and that they disappear on the subsidence of the renal disturbance.

#### QUININE IN AURAL VERTIGO.

LARGE doses of quinine, says the *American Therapist*, cause congestion of the entire aural tract, and up to a certain point increased nutrition follows, provided this effect is not too long continued. When aural vertigo is found to be due to functional disturbance, the administration of full doses of quinine for periods of three days, with intervals of the same duration, will be found of great value. Calcium sulphide given during the interval will "favor the absorption of morbid products dependent upon the quinine congestion."

#### THE SAINT CATHARINE HOSPITAL OF BROOKLYN.

A new article of incorporation has been framed for the enlargement of the powers and efficiency of this already beneficent institution. There is to be formed hereafter the Saint Catharine Hospital Association for the purpose of extending the present buildings used as hospitals and to erect and maintain others as infirmaries, dispensaries, and homes, which may be located in any of the counties of Long Island.

#### A NEW SANITARY LEAGUE.

UNDER the auspices of Dr. John S. Billings, of the army, and others, there has been formed in Washington a new sanitary or-

ganization called the Sanitary League of the District of Columbia. The health of the domicile of persons well to do will be one of the features of the movement, but it will also serve as a defense against panic in the event of the incursion of cholera. House-to-house inspection, the disposal of house refuse, and the prevention of water-contamination are also subjects to be duly considered. The league aims to disseminate sanitary intelligence and to encourage good citizens to do voluntary inspection work and to report as to particulars which exceed the powers and endurance of the local officers of health.

#### PENTAL AS AN ANÆSTHETIC.

DR. H. RIETH (*Beitrag zur klinische Chirurgie*, x; *Centralblatt für Chirurgie*, April 8, 1893) finds that pental anæsthesia in dogs is accompanied by a notable reduction of the blood pressure, and that pental is by no means free from the dangerous properties of the impure amylene formerly used. It is useful as an anæsthetic in cases where the operation is to be of brief duration and full muscular relaxation is not required.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 25, 1893:

DISEASES.	Week ending Apr. 18		Week ending Apr. 25.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	11	7	12	8
Typhoid fever.....	21	6	14	7
Scarlet fever.....	181	18	165	18
Cerebro-spinal meningitis...	7	4	16	10
Measles.....	127	5	162	6
Diphtheria.....	99	38	115	58
Small-pox.....	7	0	8	4

The Illinois State Medical Society will hold its forty-third annual meeting in Chicago on the 16th, 17th, and 18th of May.

**Change of Address.**—Dr. Wendell C. Phillips, to No. 350 Madison Avenue.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 16 to April 22, 1893:*

CRONKHITE, HENRY M., Major and Surgeon, will proceed to Fort Wadsworth, New York Harbor, and report to the post commander for temporary duty.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 22, 1893:*

GORGAS, A. C., Medical Director. Relieved from the Naval Hospital, Philadelphia, Pa., and assigned to special duty, Philadelphia, Pa.

KINDLEBERGER, D., Medical Director. Relieved from special duty, Philadelphia, Pa., and ordered to the Naval Hospital, Philadelphia, Pa.

PUSEY, A. B., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

LA MOTTE, HENRY, Assistant Surgeon. Detached from the U. S. Steamer Vesuvius, and ordered to the Naval Hospital, Norfolk, for treatment.

DE VALIN, C. W., Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the U. S. Steamer Vesuvius.

WISE, JOHN C., Surgeon. Detached from the U. S. Steamer Alliance and ordered to the Naval Hospital, Norfolk, Va., for treatment.

**Society Meetings for the Coming Week:**

**MONDAY, May 1st:** New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; Boston Medical Association (annual); St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, May 3d:** New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Buffalo Academy of Medicine (Surgical Section); Ogdensburg Medical Association; Hudson, N. J. (Jersey City)—annual, and Mercer, N. J. (annual), County Medical Societies; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

**WEDNESDAY, May 3d:** Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton); Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor); Essex, Mass., North (annual)—Haverhill, and Plymouth, Mass. (annual), District Medical Societies.

**THURSDAY, May 4th:** New York Academy of Medicine; Society of Physicians of the Village of Canandaigua; Brooklyn Surgical Society; Medical Society of the County of Orleans (semi-annual—Albion), N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Ocean County (Tom's River), N. J., Medical Society.

**FRIDAY, May 5th:** Practitioners' Society of New York (private); Baltimore Clinical Society.

**SATURDAY, May 6th:** Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

## Proceedings of Societies.

### PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Meeting of March 22, 1893.*

**The Present Position of the Hypodermic Method in the Treatment of Syphilis.**—Dr. J. WILLIAM WHITE read a paper on this subject, the concluding portion of which was as follows:

I must confess that I attach much importance to the opinions and practice of my colleagues in that society, composed of the leading syphilographers and genito-urinary surgeons of this country; I know them to be intelligent, alert, and ever on the lookout for anything that can improve their results as to either the comfort or the safety of their patients; their views and the opinions of such men as Fournier and Hutchinson, who stand in the front rank of syphilographers, not only of to-day, but of all time, far outweigh with me the one-sided statements, hasty generalizations, and untrustworthy reports of results which constitute so large a portion of the literature of hypodermic injection. I do not mean to deny that there are men of great eminence and undoubted scientific ability who are among its advocates, but if we look for them among those who give it first place in the treatment of syphilis they are relatively so few that they are lost among the seekers for novelties and the untrained and inaccurate observers who come to the front in such large numbers whenever an opportunity like this occurs.

In the light of the evidence presented above it seems to me safe to assert that: 1. The hypodermic treatment of syphilis has

not as yet shown results which warrant its adoption as a routine method to the exclusion of or in reference to other methods, but, on the contrary, has some apparently insuperable disadvantages and even dangers which render it improbable that it ever will be so adopted.

2. The circumstances under which hypodermic medication should be employed may be summarized as follows: *a.* Those cases in which other methods of treatment have been tried and failed. *b.* Those cases in which, owing to idiosyncrasy or intercurrent disease, the skin and the digestive tract can not be used for the introduction of mercury. *c.* Those cases in which, owing to grave and advancing lesions, rapid mercurialization is absolutely necessary. *d.* Those cases in which obstinate localized lesions can be most directly reached by this plan. *e.* Possibly those cases referred to by Jullien, in which early differentiation between syphilis and malignant disease, or tubercular ulceration, is extremely important, should be included in this list. I certainly feel inclined to employ the method in all doubtful cases which admit of it, particularly in those conditions of the tongue which often leave the surgeon for a considerable time in doubt as to their exact nature. Anything which promises to shorten this period of doubt by rendering the therapeutic test more rapid and more certain would be of great advantage. I should, however, in such instances feel obliged to use potassium iodide by the mouth at the same time. *f.* A theoretical possibility of the employment of mercury hypodermically has suggested itself to me, but I have not as yet actually employed it. It may be that its use by this method will aid in shortening the period of doubt which often intervenes between the appearance of the primary sore and the development of general adenopathy or of the exanthemata. If, in the presence of a sore of uncertain character, the employment of mercury hypodermically resulted in rapid cicatrization, no local treatment being employed other than cleanliness, it might occasionally throw light upon the case without being open to all the objections which attend the systematic and slower administration of mercury by the mouth. It is possible that the idea is worth a trial in exceptional cases, but I do not think it should be adopted as a routine practice.

3. As to the choice between the two great classes of mercurials, the soluble salts are to be preferred to the insoluble in the large majority of cases, as more exact in the matter of dosage and much less dangerous and less likely to be followed by local disturbances. They are always to be used when there is need for rapid mercurialization. The insoluble salts should probably be reserved for those cases in which frequent visits to the surgeon are impossible and in which no contra-indications exist. In cases of defective kidneys, diabetes, profound anemia, marked arteroma, great debility, etc., such methods are dangerous, and the case, even if urgent, will probably do better under some other form of treatment.

4. Finally, as to the special preparation to be employed: Among the soluble salts the bichloride is probably to be preferred. The results from its use are not strikingly different from those obtained from the other compounds of this class, but its stability and great solubility and its germicidal qualities seem to warrant its selection. The disadvantage is the pain which it causes, but the evidence in this direction shows that in the hands of impartial investigators, not responsible for the introduction of the particular substance employed, each of the salts on the list produces a considerable amount of pain and a not inconsiderable number of accidents or complications. Probably the bichloride is freer from objectionable features, in respect especially to the production of suppuration, than any of the salts of mercury.

Among the insoluble salts, calomel and the yellow oxide are



to be preferred. It would appear that the latter is a little less active, but at the same time much less irritating. Gray oil is the most available form of administering metallic mercury.

**Criminal Abortion.**—Dr. WILLIAM H. PARISH read the following paper:

In submitting a paper this evening upon the subject of criminal abortion, I must refer to some extent to the law relating to it, and I shall do so with no little hesitation in the presence of the learned legal gentlemen with us.

I am very forcibly reminded of something I read during my college days, in one of those dead languages which we learn so slowly and forget so quickly—namely, that he who is ignorant of the science of warfare should not discuss military matters in the presence of Hannibal—so I, ignorant of law, might well be silent in reference to matters of law in the presence of that legal Hannibal, our very able district attorney. But I hope he will correct me when in error, and I am sure that he and the other legal gentlemen present, and our coroner, Mr. Ashbridge, will present, in a most interesting and instructive manner, the correct relations, under the law, of the physician to cases of criminal abortion, when the after-treatment comes under his charge.

The practice of destroying the fetus *in utero* is not of modern introduction, but is recorded in history from the earlier nations, with the sole exception of the Jews. Aristotle and Plato defend it (*Travels of Anacharsis*, v, p. 270; *ibid.*, iv, p. 342). It is mentioned by Juvenal, Ovid, Seneca, and Cicero, and denounced by the earlier Christians. It was common in Europe through the Middle Ages and still prevails among the Mohammedans, Chinese, Japanese, Hindus; and it has been so extensively resorted to in most of the nations of Africa and Polynesia that it is doubtful if more have died in these countries by plague, famine, and the sword.

In approaching the consideration of criminal abortion the first query which very naturally presents itself is, "What constitutes criminal abortion?" In attempting to reply to this question we must not confound the different interpretations given to the term abortion. In medical language the word indicates delivery prior to the viability of the child, or it is restricted by some to delivery prior to the formation of the placenta; in other words, it is limited to delivery during the first six months or the first three months of pregnancy. In law this term is not thus limited, but is applied to delivery at any time prior to intrauterine maturity.

The expulsion of the ovum, fetus, or child by criminal violence, at any period of utero-gestation, is regarded as a miscarriage or abortion in law. Criminal abortion, then, is criminal delivery prior to maturity. What constitutes criminal abortion as distinguished from non-criminal abortion? Wherein rests its criminality under human or Divine law?

"Abortion" has been legally defined thus: "Any person who does any act calculated to prevent a child from being born alive is guilty of abortion. The intention constitutes the crime, not the means employed. The drugs may even be harmless." He, then, who resorts to any procedure, however harmless in itself, with the intention of producing an abortion, is guilty.

If the pregnant woman, with or without the advice of another, administers to herself a drug or resorts to some mechanical procedure with the intention of producing an abortion, she is herself guilty and liable to punishment under the law, even though the drug or the procedure be itself harmless.

If she voluntarily submits to the use by another of mechanical means which she knows are intended to produce on her an abortion, she is guilty along with him who uses the instrument or other means.

In order that an attempt to produce an abortion may constitute a felony, it is not necessary that the woman be pregnant

—even though she be not pregnant, the intention constitutes the crime.

I will not argue before this society the great moral criminality of what is known under the law as criminal abortion. The medical profession looks upon this crime as one of the most heinous, and as closely allied to infanticide. He who is believed to be guilty of such a crime could never be received into membership in this or any other medical society; or if a member should so far forget his high calling as to be guilty of this crime, his expulsion would quickly follow upon the presentation of adequate evidence of his guilt.

The physician who resorts to criminal abortion does so in the most secret manner, for he knows not only that he is punishable under the law, but he also knows that professional ostracism will make him forever an outcast from the medical profession.

Undoubtedly many criminal abortions are produced by legalized practitioners of medicine, but in this State the law legalizing the practice of medicine is a very lax one, and in some States there is no law determining who shall practice medicine. I do not believe that criminal abortion is frequently performed, even ever so secretly, by men or women of recognized professional standing; but that it is at times produced by some such members is certainly the case, as the records of the criminal docket show. The habitual abortionist, if a legalized practitioner, is nearly always one around whom suspicion, at least, has rested, and this suspicion has been sufficient to debar him from that affiliation with the worthy members of the medical profession which constitutes to a large degree the stamp of professional respectability. The medical profession draws a wide distinction between a legalized practitioner of medicine and a worthy, reputable physician. Unfortunately, this distinction is not sharply drawn by some lay minds.

Graduates of the best medical schools have proved false to their noble vocation, and have brought dishonor upon themselves and, to a certain degree, discredit upon the profession of medicine. But this experience is not limited to our profession—a like experience occurs in the sister professions of theology and of law, and, in fact, we may say in all vocations of life.

There are those, however, who produce, or attempt to produce, criminal abortion who are not legalized practitioners of medicine—are not practitioners of medicine at all. Often such persons are exceedingly ignorant; they know nothing of the anatomy concerned; they possess no manual skill in the manoeuvres undertaken; they have only the most vague knowledge of the injuries which may be inflicted; they know nothing, or almost nothing, of the effects of the drugs administered; they only believe that certain procedures and certain drugs have the reputation of producing abortion; yet he who attempts to produce an abortion always knows that what he is doing is criminal.

Criminal abortion, however, is not infrequently produced or attempted by the pregnant woman herself. I think that such women are not always cognizant of the fact that they are liable to the law for such an act. Each one knows that if she commits the crime on another she is amenable to punishment; but for a self-produced abortion she seems not to know that she is punishable.

A few words in reference to the justifiable production of abortion or of premature labor by members of the medical profession. That the production of delivery before the viability of the child—i. e., before the end of the sixth month—is at times justifiable, is recognized in the courts and by the medical profession. But the conditions which justify such a radical procedure are not numerous.

Whenever it is necessary to terminate pregnancy in order to save the life of the mother, such a procedure is justifiable; it

not thus necessary, the procedure is criminal. I grant that there is room for difference of opinion in the medical profession as to what conditions justify the production of abortion. The resort to an abortion may be reprehensible though not criminal; for instance, when it is performed by a practitioner of medicine under the mistaken, though honest, opinion that an abortion is necessary to save the life of the mother. It is quite generally accepted that there are cases of disorders of the kidneys, or of the heart, of degenerations of the ovum—as myxoma of the chorion and polyhydramnios—and very rarely instances of uncontrollable vomiting, in which the production of early or late abortion is demanded and justifiable, because it is necessary to save the life of the mother, and also because the death of the mother always involves the death of the embryo and usually that of the child approaching maturity. The authoritative works on medical jurisprudence class among the conditions justifying abortion, extreme pelvic deformity. Although this statement was a proper one at one time, it is not so at present, in my opinion.

The very favorable results of the Cæsarean section, and of its modification, the Porro operation, and of symphysiotomy so recently introduced into this country—the results, I say, of these operations are now so very favorable, both to the mother and to the child, that it is time to eliminate even extreme pelvic deformity from the list of conditions justifying early abortion. The law leaves it quite entirely to the medical profession to determine what constitutes justifiable abortion, either early or late. The responsibility in this direction thus placed upon us is a very weighty one, and the privilege conferred with it should be exercised with the utmost discretion. I have, in a very few instances, felt that the physician was getting very close to criminal ground when he produced an abortion under the plea of justifiability. For instance, a lady pregnant three months wanted an abortion produced, and so did her husband, because she, having had one very painful labor, had great dread of another labor in advanced pregnancy. They both expressed great fear that insanity would develop if her pregnancy was not terminated. Her physician asked me in consultation. We decided that an abortion was unjustifiable. She returned to her former home in a distant city and there the abortion was produced by a regular practitioner. I saw a letter from this physician in which he attempted to justify on medical grounds, not only this abortion, but also two previous ones on the same lady. His plea was that of justifiability because of apprehended insanity. Such and similar cases seem to me to quite merge into criminality. Professional opinion in reference to what constitutes justifiable abortion should be so firmly crystallized that criminal abortion could not be performed under a false plea of justifiability.

As to the frequency of the occurrence of criminal abortion, it is impossible to give any statement of even approximate accuracy. Secrecy is so closely associated with its performance that it is impossible to arrive at more than the crudest opinion as to the frequency of its occurrence.

I suppose every physician of some reputation as an obstetrician or gynecologist has applications from those desiring that an abortion should be produced. Probably a half dozen such applicants call upon me during each year. Doubtless the same women visit other physicians on like errands. Also, nearly every physician is called in to take charge of the after-treatment of cases of criminal abortion. He will suspect some of them to be criminal, but in most instances he is unable to assert that the abortion is or is not a criminal one. Many cases of early criminal abortion do not come under reputable professional care at any period of their course. Even all the fatal cases are not recognized as criminal. For these reasons it is

impossible to do more than to form an opinion that criminal abortion is performed with considerable frequency. All statistical statements as to the frequency of criminal abortion are, however, valueless, and are merely expressions of opinion.

It is well recognized that criminal abortion brings to the patient enhanced dangers—dangers greater than those pertaining to accidental or justifiably produced abortion. The increased dangers are due to the character of the manoeuvres and to the drugs resorted to. The mechanical measures are often carried out in a bungling, unskilled manner, and without regard to the liability of conveying a septic poison. Often drugs are used which, when given in too large quantities, endanger the life of the patient whether or not an abortion is produced. The woman, desirous of securing secrecy, often does not call in a physician sufficiently early to enable him to prevent a fatal result.

The methods of producing, or of attempting to produce, criminal abortion are numerous and widely diverse in character. Of the drugs resorted to in this country, probably the ones most frequently used, and also the ones most likely to effect the result aimed at, are the preparations of ergot and of cotton root. These drugs act by stimulating directly the contraction of the uterus. I have known a patient to treasure up a bottle of ergot left over from her labor, and to successfully partake of its contents at the incipency of her next pregnancy. But even these drugs usually fail to effect an abortion at any period of pregnancy. Among other drugs frequently administered are aloes and savine. The entire list of medicines occasionally resorted to would be a long one—among them may be mentioned elaterium, croton oil, colocynth, gamboge, cantharides, arsenic, strychnine, corrosive sublimate, and other forms of mercury; pennyroyal, tansy, black hellebore, and not a few others, some of which are active poisons, others are dangerous in large quantities, and some are harmless. None of them produce abortion except occasionally, and then only through their injurious effects upon other organs or upon the general system. Some of them will produce the death of the patient without producing an abortion.

Tardieu, in his classical treatise, gives numerous cases of abortion produced, or attempted, by mechanical means. The professional abortionist usually dilates the cervix with a metallic dilator, and introduces a slender instrument into the uterus and punctures the membrane—or he may use the latter instrument without previous dilatation of the cervix. Very usually, after the membranes have been punctured, he dismisses the patient and an abortion comes on in generally from three to ten days.

The more modern method of the criminal abortionist of advanced ideas is to dilate the uterus with graduated dilators, under ether, and at once to empty the uterus with all antiseptic precaution, usually receiving the woman into his private hospital for this operation. A lady applied to one of the medical men who advertised in the New York papers. He admitted her into his hospital in New York city, and practiced the immediate removal of the ovum. She returned to Philadelphia at the expiration of a week's absence.

But sometimes the operator is ignorant and unskilled, and a great variety of instruments have been carried into the uterus: wooden skewer, crochet-needle, hair-pin, knitting-needle, a weaver's spindle, whalebone, wire, umbrella-ribs, pen-holders, catheters, bougie, sounds, tents, and dilators. Tardieu speaks of the frequent use in France of what is there termed a hedgehog, which I believe is a slender instrument having near the end a number of bristles, which lie close to the handle when introduced into the uterus, but expand after introduction, and, when rotated, very effectually break up the ovum, but which has

proved disastrous also to the mother. Electricity is also effectually resorted to, one pole being usually introduced into the uterus.

Injections of corrosive or other irritant substances into the vagina are occasionally resorted to by the patient or by an ignorant abortionist. I have known a patient to produce an exfoliation of almost all of the epithelial lining of the vagina by means of a strong solution of alum without producing an abortion. Injections of different fluids, even water, into the uterus are resorted to, and if the membranes are largely detached or ruptured, abortion inevitably follows. In a few instances the most violent measures, such as the introduction of the hand into the uterus and attempts to drag out the entire uterus, have produced most disastrous effects.

What lesions do we find following attempts at criminal abortion? Naturally, from the variety of the means resorted to, these are various, and may be numerous in an individual case. In one authentic case the patient herself carried an umbrella-rib into the uterus, perforated its wall, entered and passed upward and through the abdomen, through the diaphragm, and into the lungs. She did not desist in her efforts until coughing of blood and troubled breathing alarmed her. She concealed her manœuvres, and the umbrella-rib was found *in situ* in a post-mortem examination. During pregnancy the physiological softening of the uterine tissue permits the easy passage of a somewhat sharp instrument through it into the peritoneal cavity, and generally, with resultant fatal peritonitis. When mechanical means are resorted to, if perforation of the uterus does not occur, there is usually, though not invariably, laceration—it may be a slight one—of the neck of the uterus or of the vagina. Rupture of the vagina or of the uterus has occurred from the introduction of the hand. Abscesses at various points in the uterus or in close proximity to it may follow. Blood poisoning, with local inflammations, constitute the pathological conditions following many cases of criminal abortion. When drugs have been administered, gastric and intestinal inflammation may result, and evidences of such be seen after death.

It is not usually difficult to determine that an abortion is in progress; but it is by no means an easy matter to determine with certainty, from the examination of the patient during life, whether or not the abortion is criminal in character. Even fatal perforations of the uterus are not usually recognizable during life. The statements of the patient may give this information, but she may, and usually does, deny that any attempt has been made to produce an abortion. Her statements, if accepted, would usually be misleading. Hence cases which recover, and the very great majority do recover, can usually be only diagnosticated as probably criminal abortions.

In the lesions found post mortem there is no characteristic evidence that the abortion has been a criminal one, excepting the wounds, which are usually, though not always, present in such cases as have resulted from the use of mechanical means. Even then the history of the case must be looked into, for the abortion may have been innocently produced by a reputable physician, who had failed to recognize the existence of pregnancy. Lacerations of the vulva, perinæum, or vagina may result from violent sexual intercourse, and excessive or violent sexual intercourse is not an infrequent cause of abortion in the young.

The after-treatment of criminal abortion must be according to the peculiarities of the case. If the abortion is incomplete, the indications are absolute to immediately empty the uterus and to render it aseptic. Here the expectant treatment is fraught with great danger. Such cases usually call for the utmost skill of the expert to effect the recovery of the woman.

Most frequently the underlying cause of a fatal result is septic infection or blood-poisoning. The traumatism produced is in itself usually slight and insignificant, but septic poison develops in the retained fragments of the products of conception, or is carried into the genitals by the abortionist. Blood-poisoning and the associated inflammatory lesions result.

Abdominal section with ablation of the uterus and its appendages, or of the appendages alone, may be necessitated.

When a patient suffering from a criminal abortion is sent to a hospital, it should be to one having a maternity or a gynecological ward; otherwise the best treatment may not be secured.

In the management of cases of criminal abortion the physician is often placed in a most trying position. If, perchance, he has been informed by the patient, or if in his examinations he has discovered that measures or drugs have been resorted to with the view of producing an abortion, what becomes his duty under the law? Here we would like to have an expression of the views of the coroner, the district attorney, and the other lawyers present.

Is it incumbent upon the physician to notify the officers of the law that an abortion has been produced, or attempted, illegally? If he does not thus furnish this information, to what extent, if any, does he render himself a *particeps criminis* under the law? Should the information thus gained in the practice of his profession be held sacred in deference to the good name of his patient, who is usually, though not always, more sinned against than sinning, or in deference often to the fair fame and happiness of the other members of the family?

I believe that very often the physician does all that is in his power to conceal both the fact that an illegitimate pregnancy has occurred and also that an abortion, even though criminal, has resulted. Is the physician then acting with justice to himself and with a proper appreciation of his duties under the circumstances? Is it incumbent upon him to become an informer?

I know that in this State the information gained in the practice of his profession, and necessary to the proper treatment of his patient—I know that such information is not privileged, but may be extorted from him in our courts. Yet must he voluntarily convey this information to the officers of the law? Or shall he draw a distinction between the fatal and the non-fatal cases? Shall he report only the fatal cases to an officer of the law, withholding his certificate of death in such instances and letting the coroner investigate the circumstances? Certainly, if the case is about to terminate fatally, the proper information should be given in order that an ante-mortem statement may be secured, and undoubtedly also no physician should give a death certificate in any case in which the death has resulted from what he strongly suspects or believes or knows to have been a criminal abortion.

These rules are in accord with justice to the physician whose reputation is at stake, and are also in accord with law and the welfare of the community. But if the patient is recovering, is it required by law, or is it in accord with the general welfare of the community, that information bearing upon the character of the abortion should be formally brought by the physician before the officers of the law? I will answer the question in the negative, and will ask the gentlemen present to tell us in the discussion whether or not I am correct. In my opinion, the physician should not become an informer.

I will further say that he should not elicit or extort from the patient any information bearing upon her criminality other than that which is necessary for his guidance in the performance of his professional duties. He must not perform the functions of a detective.



In all serious cases of abortion, especially if criminal, the physician should secure another physician in consultation for the protection of his own reputation, as well as for the welfare of the patient. Let the physician remember, also, that he can examine the patient's genitals only with her consent. If he, by an exercise of force, secures such examination, he renders himself liable to punishment by legal process.

The consideration of the measures which may tend to diminish the number of criminal abortions becomes very important in every large city, for it is believed that where the population has become concentrated, there this crime occurs with greatest frequency. These conditions or habits of life, which diminish the number of marriages, increase the number of illegitimate pregnancies and the number of criminal abortions. But many such abortions occur in the married, and largely in proportion to the tendencies on the part of the married to indulge in expensive habits of life beyond their financial abilities.

The disgrace and shame attendant upon illegitimate pregnancy or maternity are the impelling motive on the part of the great majority of the unmarried. A recognition of the difficulties and of the disgrace attendant upon the care of an illegitimate child, on the part of its unmarried mother, impels some to secure criminal abortion.

With all, however, there is an underlying immorality, usually on the part of both sexes, which leads up to the commission of an act as unnatural as it is criminal. The preservation of the purity of morals, then, of the youth of both sexes constitutes the only efficient safeguard against the occurrence in any community of criminal abortion; other measures are adjuncts only.

**The Law of Criminal Abortion in Pennsylvania** was the title of the following paper by Mr. LORENZO D. BULETTE, of the Philadelphia bar:

The differences of opinion among the courts of England and the various States as to the stage of gestation at which the common law crime of abortion may be perpetrated causes any extended examination of their decisions to partake of a speculative rather than practical character; especially so in view of the fact that the question is now very generally settled by statute, and nearly all indictments are founded on these statutes, the provisions of which and the judicial interpretation thereof, even on similar provisions, vary in the courts of the different States.

And when, in addition to this, it is recalled that the law of this State, in the severer view it has always taken of the crime and the milder view it has always taken of the consequences thereof where they result in the death of the woman, presents peculiarities which sharply differentiate it from the law of other States, thus causing it to stand practically alone, it will be apparent that the course most fruitful of results, for the purposes of the present occasion, is to confine our inquiry to the law of criminal abortion as it stands to-day under the Criminal Code of Pennsylvania and the decisions of her courts interpreting that code.

The first and only legislative enactment aimed at this crime appears as the 87th and 88th sections of the Penal Code, which is known as the Act of March 31, 1860.

Section 87 is in the following language:

"If any person shall unlawfully administer to any woman, pregnant or quick with child, or supposed and believed to be pregnant or quick with child, any drug, poison, or other substance whatsoever, or shall unlawfully use any instrument or other means whatsoever, with the intent to procure the miscarriage of such woman, and such woman, or any child with which she may be quick, shall die in consequence of either of said unlawful acts, the person so offending shall be guilty of felony,

and shall be sentenced to pay a fine not exceeding five hundred dollars, and to undergo an imprisonment by separate or solitary confinement at labor not exceeding seven years."\*

Section 88 is in language as follows:

"If any person, with intent to procure the miscarriage of any woman, shall unlawfully administer to her any poison, drug, or substance whatsoever, or shall unlawfully use any instrument, or other means whatsoever with the like intent, such person shall be guilty of felony, and, being thereof convicted, shall be sentenced to pay a fine not exceeding five hundred dollars and undergo an imprisonment by separate or solitary confinement at labor not exceeding three years."†

Both these sections are new in the criminal statutes of Pennsylvania; and, contrasting them broadly, it is clear that Section 87 is intended to meet the case of the death of a pregnant woman following any criminal intent to procure her miscarriage, or the death of the child with which she may be pregnant. It also meets the case of the death of a woman from drugs administered, or instruments applied, with the intent to produce abortion, where such woman is not actually pregnant.

Section 88 punishes the administration of drugs or the use of instruments with intent to procure abortion, although no abortion is actually produced, and although the female survives the operation. This section, it was hoped by the commissioners who drafted the Penal Code, might tend to put a stop to a crime of too frequent occurrence.‡

With this much for the language and purpose of the statute, we next proceed to the decisions of the courts explaining and interpreting it; and these may be arranged for convenience and clearness under the following heads:

1. Definition and Degree of the Crime.
2. Interpretation of the Statute.
3. Means Employed and the Intention.
4. Legal Responsibility of the Obstetrician in his Relations with Abortion.

*Of Definition and Degree of the Crime.*—Miscarriage, both in law and philology, means the bringing forth the foetus before it is perfectly formed and capable of living.

Abortion is synonymous and equivalent to miscarriage in its primary meaning; and, when it is brought about with a malicious design, or for an unlawful purpose, it is a crime in law.

Any person, therefore, who does any unlawful act calculated to prevent a child from being born alive is guilty of criminal abortion. This is justly regarded as an offense of great enormity; because, to procure the miscarriage of the woman interferes with and violates the mysteries of Nature in that process by which the human race is propagated and continued. The attempt, by wicked means, to interfere with that process and destroy the fruit of the womb thus becomes a crime against Nature, closely allied to murder, and therefore deserving of severe and ignominious punishment.§

"It is not," says Mr. Justice Coulter, "necessary that the mother have quickened to constitute the crime of committing abortion. But, although it has been so held in Massachusetts and some other States, it is not, I apprehend, the law in Pennsylvania, and never ought to have been the law anywhere. It is not the murder of the living child which constitutes the offense, but the destruction of gestation by wicked means and against Nature. The moment the womb is instinct with embryonic life, and gestation has begun, the crime may be perpetrated."||

\* Act, March 31, 1860, Sec. 87. Purdon's Digest, Sec. 156, p. 431.

† Act, March 31, 1860, Sec. 88. Purdon's Digest, Sec. 157, p. 431.

‡ Report of Commissioners on the Penal Code, p. 25.

§ Mills vs. Commonwealth, 13 Pa. St., 633 (1860).

|| Commonwealth vs. W—, 3 Pittsburgh, 462 (1871).

In this connection it must be borne in mind that at common law it was never a punishable offense to perform an operation on a pregnant woman, with her consent, before the child quickened; nor was it murder, at common law, to take the life of a child at any period of gestation, even in the very act of delivery, or while any portion of the child, except the umbilical cord, remained within the vulva.\*

Preliminary to a discussion of Section 87, which applies to the crime of committing an abortion resulting in the death of either or both mother and child, it may be profitable to contrast the degree of criminality of the offense, resulting in the death of the mother, as viewed by the common law, with the degree of criminality of the same offense as viewed by the law of Pennsylvania as it existed previously to March 31, 1860.

Of the degree of turpitude of this offense, one of the most learned and humane sages of the common law, Sir Matthew Hale, gives the following as the doctrine ruled by him at Bury Assizes in the year 1672:

"If a woman be with child, and any gives her a potion to destroy the child within her, and she takes it and it works so strongly that it kills her, this is murder: for it was not to cure her of a disease, but unlawfully to destroy her child within her; and, therefore, he that gives a potion to this end must take the hazard, and if it kills the mother it is murder."† And the same doctrine has been held in more recent times.‡

In Pennsylvania, however, it was decided in a more lenient spirit that although death was not intended, yet the acts are of a nature deliberate and malicious, and necessarily attended with great danger to the persons on whom they are practiced; and, consequently, those who perpetrate them are answerable for their results. And although by the common law such a crime would therefore have been murder, yet in Pennsylvania it can hardly be regarded as exceeding that crime in the second degree, unless there existed in the perpetrator of the mischief an intent as well to take away the life of the mother as to destroy her offspring. It is the nature of the intention with which the criminal act is committed that constitutes the great distinguishing feature between murder as it stands at the common law and murder as it is understood in the criminal code of this Commonwealth. Where the illegal act which produces death is malicious and perpetrated with an intent to take life, the offense becomes murder in the first degree and punishable with death; where no such attempt is apparent, the crime is reduced to murder of the second degree, and punishable by penal imprisonment.

At common law the death of the mother following criminal abortion is murder, not because the agent accomplishing the act intended to kill the female, but because the act being unlawful in itself he is held responsible for all its results. In Pennsylvania, however, that murder only is felony of death where the act producing the homicide is not only unlawful but perpetrated with an intent to kill the victim of the crime. The common law murder following criminal abortion is the exact kind of crime which the Legislature intended by the Act of 1794 to reduce to the grade of murder in the second degree, being a homicide arising from an unlawful act, unaccompanied with an attempt to take away life.\*

Thus stood the law relating to this offense prior to the Abortion Act of March 31, 1860. But since that time the Supreme

Court has decided\* that the effect of Section 87 of that Act was to take the crime therein specified out of the class designated as murder in the second degree, and make it a felony of lesser grade and prescribe the punishment therefor. As a consequence of this decision, if a person cause the death of a woman in attempting to procure a miscarriage, he can not be indicted for murder: and this is the law in Pennsylvania at this time.

*Of the Interpretation of the Statute.*—As compared with the offense specified in Section 87, that described in Section 88 is complete without the death of either the woman or the child. "In both cases," says Mr. Justice Green, "the grade of the offense is the same—viz., felony. In both cases the acts done are the same. In the first, if those acts are followed by the death of the mother or child as a consequence—that is, in the relation of effect to a cause—a difference results in one of the penalties imposed. The possible fine is the same, but the possible imprisonment is longer—seven years instead of three. The facts which constitute the crime are precisely the same in both cases—to wit, the administering the drug or using the instrument with intent to procure a miscarriage. It follows that the death is no part of the facts which go to make up or constitute the crime. It is complete with the death or without it. The death, therefore, considered in and of itself, is not a constituent element of the offense. It may happen or it may not. If it does not happen, a certain possibility of penalty follows. If it does happen, the same character of penalty follows, but with a larger possibility, not a certainty, in one of its items. This seems to be a precise expression of the difference between the cases provided for in the two sections.

"In case the woman does die in consequence of the unlawful acts, the crime charged and tried is not homicide in any of its forms, but the felony of administering a drug or using an instrument with intent to procure a miscarriage. In its facts and in its essence it is the same crime that is charged and tried if no death results. The death, when it occurs, is an incident the sole purpose of which is to determine whether the imprisonment of the defendant may be longer than when death does not occur. The crime is as fully completed without the death as with it. The death, therefore, is not an essential ingredient of it. Its function under the statute, when it occurs as a consequence, is not to determine the *factum*, or the character, or the grade of the crime, but the character of the penalty to be endured by the criminal."†

*Of the Means employed and the Intention.*—The terms of the statute specifying the means employed are so sweeping and comprehensive that one could scarcely suppose a doubt in this respect possible: "any drug, poison, or other substance whatsoever, or shall unlawfully use any instrument or other means whatsoever," is the language of the statute. But the question did arise during the trial of an indictment charging the accused with prescribing and advising the use of immoderate and excessive exercise with intent to induce abortion. And the Court, in answer to the objection of defendant's counsel that such means do not constitute any offense under Section 88, contending that the words defining the crime, "or shall use any instrument or other means whatsoever," imply some act to be done by the defendant and not by the woman herself at his instigation, or under his advice, persuasion, or influence, said: "We are not prepared to adopt the view of the law presented by the defendant's counsel, for the reason that such an interpretation would greatly abridge what we conceive to be the remedial design of the statute, and, to a great extent, frustrate the expressed intention of its framers. If a person intent on in-

\* Mitchell vs. Commonwealth, 78 Ky., 210 (1879).

† 1 Hale's *Plen. of the Crown*, pp. 423-430.

‡ Tinkler's Case, 1 East P. C., ch. 5, sec. 16.

\* King, P. J., in *Commonwealth vs. Keeper of Prison*, 2 Ashm., 235 (1839).

\* Commonwealth vs. Railing, 113 Pa. St., 37 (1886).

† Railing vs. Commonwealth, 110 Pa. St., 104 (1885).

ducing abortion must not only prescribe the drug but with his own hand put it to his victim's lips, or, after contriving the mechanical means, must to moral constraint superadd physical force, we can readily perceive how the abortionist may practice his nefarious schemes with impunity in the very face of the statute. The defendant, according to the evidence, contrived these means and used the prosecutrix as a blind instrument in rendering them efficacious; what she did was as much his act as if she had been moved to it by outward constraint." And, as the evidence produced by the prosecution tended to prove the charge of advising the use of immoderate and excessive exercise to induce the abortion, the Court instructed the jury that such means were within the intent and meaning of Section 88, and that they were used by the defendant just as much so as if he had been present and employed physical instead of moral force.\*

And in another case it was said that if any person administers any matter or thing to a woman who is pregnant or quick with child, with intent to produce an abortion, and the woman or child shall die, notwithstanding the matter or thing administered is but a crumb of bread, such person is within the statute and may, upon proper evidence, be convicted.†

The question, therefore, is one of intention and not of the means employed; it is whether the drug was used or the means were employed with the intent to induce abortion.

It is not necessary that the substance administered have some inherent tendency to accomplish the imputed design. If a person administers any harmful substance to a pregnant woman, or to one supposed at the time to be pregnant, with the intent to procure her miscarriage, although the substance administered may fail of the effect designed, and although it may have no tendency to produce such effect, he will be guilty of the offense of criminal abortion within the contemplation of the statute.

And it is not necessary for the Commonwealth to establish beyond doubt what was the direct and immediate cause of the miscarriage; the question is whether the means employed were calculated to produce it, and with intent to do so.‡

Summarizing briefly, we conclude: *a.* That in respect to the crime of abortion the law of Pennsylvania has always taken an advanced and enlightened view as compared with the history of the law relating to this crime in other States—its policy and first care throughout being the preservation of fetal life and the punishment of the unlawful destruction thereof severely as compared with the punishment inflicted upon the same offense where it results fatally.

*b.* That the intention, not the means employed, constitutes the crime, which is complete although the means employed have no inherent tendency to produce the designed effect, and although the woman be not pregnant.

*c.* That the crime under our statute is not homicide in any of its forms, but simply the statutory crime of committing or attempting to commit abortion; and that in its essence the degree of criminality is the same whether the results are fatal or otherwise, the only difference being a slightly increased punishment in the former case.

*Of the Legal Responsibility of the Obstetrician in his Relations with Abortion.*—It seems a proper addition to this statement of the law to offer also the precautions thereby suggested for the guidance of the professional conduct of the obstetrician in order to shield him from reproach, suspicion, or, perhaps,

prosecution in those relations with abortion in which he is likely to be placed.

That abortion may in some cases be lawful is undoubted. This fact, while not expressed in the terms, is true as a necessary inference from the language of the statute: it is the unlawful administration of drugs and the unlawful use of instruments that is denounced by its sanctions. Any question, therefore, respecting the illegality of inducing premature labor in certain cases where the life of the woman is seriously endangered, as in deformity of the pelvis or in excessive vomiting from pregnancy, can not now be entertained; for the means are administered or applied with the *bona fide* intention of benefiting the female, and not with any criminal design.

Says an authority: \* "The necessity for the practice ought to be apparent; thus, for instance, it should be shown that delivery was not likely to take place naturally without seriously endangering the life of the woman. It is questionable whether, under any circumstances, it would be justifiable to bring on premature expulsion merely for the purpose of attempting to save the life of the child, since the operation, even when performed with care, is accompanied with risk to the life of the mother. Hence a cautious selection of cases should be made, as the operation is necessarily attended with some risk to both.

"All that we can say is that, according to the general professional experience, it should place the woman in a better position than she would be if the case were left to itself. But before a practitioner resolves upon performing an operation of this kind he should consult with his colleagues; and, before it is performed, he should feel assured that natural delivery can not take place without greater risk to the life of the woman than the operation would itself create.

"The non-observance of these rules is necessarily attended with some responsibility to the general practitioner. In the event of the death of the woman or child he exposes himself to a prosecution for a criminal offense, from the imputation of which even an acquittal will not always clear him in the eyes of the public."

The physician is also liable to be brought into another and different relation with abortion—that is, when he is called to attend a patient suffering from the effects of a criminal operation and the question arises as to his legal duty in order to shield himself from the consequences attending his after-acquired knowledge of the crime.

The only safe course for such physician, after being satisfied with the correctness of his diagnosis—confirmed by one or, better still, two of his colleagues—is to lay the information so acquired of the crime before the prosecuting attorney of the county. But it may, perhaps, be more satisfactory to the medical profession to have the reasons for this advice set forth somewhat in detail.

In its interpretation of the two sections of the Abortion Act, the Supreme Court, as mentioned above, has decided, and expressed its opinion with some emphasis, that the two offenses therein described are the same; consequently, the duty of the physician in his relations with each case—that is, whether the woman dies or survives the operation—is the same.

That Court has also decided that dying declarations are admissible in evidence only in cases of homicide; and, as the same Court has further declared, as above stated, that criminal abortion is not, in this State, homicide in any of its forms, it necessarily follows that the dying declarations of the victim of an abortion are not admissible in evidence at the trial of a person charged with the latter crime. And as it frequently happens, from the peculiar circumstances surrounding cases of this sort,

\* Acheson, P. J., in *Commonwealth vs. W.*, 3 Pittsburgh, 462 (1871).

† *Commonwealth vs. Gumpert*, 1 Luz. Leg. Reg., 187 (1877).

‡ Acheson, P. J., in *Commonwealth vs. W.*, 3 Pittsb., 462 (1871).

\* Taylor's *Medical Jurisprudence*, p. 629.



that this is the only evidence, it would be worse than useless to make any exposure of a matter, the only effect of which would be to bring additional shame and disgrace upon the innocent family and relatives of the victim, with no possibility of convicting the accused.

Hence will be seen the wisdom of first informing the prosecuting officer of the county rather than the coroner or the police authorities. For it is the duty of the prosecuting officer, or district attorney, as he is called in this State, to prosecute offenders against the law. He is skilled in the law and able to weigh such evidence and judge of its probative effect; and if, for any legal reason, such as stated in the preceding paragraph, the facts constituting the information be either incompetent or insufficient as evidence, that reason will be known to the district attorney, and unnecessary public exposure will be avoided. On the other hand, the subordinate officers referred to are not required to be skilled in the law; their jurisdiction is limited and the sphere of their official duty circumscribed, so that it often happens that unnecessary publication of such facts results from a mistaken notion of their duty. Moreover, they are, in a sense, merely a part of the machinery in the hands of the district attorney, that may be employed by him in bringing criminals to justice.

From all of which it is clear that the proper course for the physician, in every instance, is to lay the information that comes to his knowledge, of a criminal abortion, before the district attorney. This may be done either in person or by letter to that officer, setting forth the facts, and it then becomes his duty to take whatever subsequent action such facts may seem to warrant. In any event, the physician is thus relieved of further personal responsibility in the matter.

Furthermore, such a course on the part of a physician does not render him liable either to the imputation of being an informer or a detective, nor is he chargeable with a violation of professional confidence. The reason is, that the Legislature has declared criminal abortion to be a felony, and to conceal a felony is an offense known as misprision of felony, which, under the Criminal Code of Pennsylvania, renders the person guilty thereof liable, if convicted, to be punished as an accessory after the fact, by a fine not exceeding five hundred dollars and to undergo an imprisonment, with or without labor, at the discretion of the Court, not exceeding two years.\*

Consequently, the physician who, in the face of the powerful and persuasive influences against disclosure that are sometimes brought to bear upon him in these cases, and who, although imbued with a fine sense of the sacredness of the relation of physician and patient, and the obligation thereby imposed to preserve the secrets thereof inviolate, yet yields obedience to the higher law, not only discharges a high and solemn duty to the public by making such information as will aid in the punishment and prevention of a crime, so dark and hidden, that strikes at the very foundations of society, but also relieves his own conscience from any share in the guilt of the principal offender, and at the same time pursues the plain course marked out by law to shield himself from any liability to prosecution by reason thereof.

The observance, therefore, by the medical practitioner of these simple prudential measures, either when it becomes necessary to induce premature labor or when he is called to attend the victim of an abortion, will not only free him from the liability of any criminal charge, but commend him in the eyes of the law.

(To be concluded.)

## Book Notices.

*Ptomaines, Leucomaines, and Bacterial Proteids; or the Chemical Factors in the Causation of Disease.* By VICTOR C. VAUGHAN, Ph. D., M. D., Professor of Hygiene and Physiological Chemistry in the University of Michigan and Director of the Hygienic Laboratory; and FREDERICK G. NOVY, Sc. D., M. D., Assistant Professor of Hygiene and Physiological Chemistry in the University of Michigan. Second edition, revised and enlarged. Philadelphia: Lea Brothers & Co., 1891. Pp. 391.

A GLANCE at an author's preface and at his table of contents almost inevitably precedes the perusal of his book, and in the present instance, events having occurred in their logical sequence, we feel a certain disposition to slightly criticise our authors. It has been the usage, from time immemorial, to utilize a preface and an introduction in the setting forth of the author's plan and intention—as a prologue, in fact. "To collect, arrange, and systematize the facts concerning ptomaines and leucomaines has been the first object" of our authors, and for this, we are told, everything published up to 1891 has been made use of. It is a supposable case that the present work should fall into the hands of a person unprepared by previous technical learning for the study before him, who would necessarily expect to have a reasonable amount of explanations of the terms used. Now, if this person finds the entire introduction devoted to an incidental disquisition on bacteria without any statement being proffered him as to the causal relations existing between bacteria and ptomaines, he is likely to be disturbed and far from satisfied. Moreover, although the derivation and usage of the word ptomaine are duly set forth in the first chapter, we are obliged to wait until the twelfth before being enlightened as to the nature of leucomaines or told wherein they differ, if at all, from ptomaines. This omission is the more singular, as the third subject of the book, Bacterial Proteids, is defined at the same time as the ptomaines are, in the first chapter, so that an unprejudiced person might be excusable for surmising the word leucomaine to be possibly a synonym of one or the other of the two terms. We believe also that Chapters II, III, and X should be consecutive, as relating to the same order of facts, and that the continuity of the historical sequence is broken by the enumeration of the chemical and physiological reactions of each ptomaine and the conclusions of their discoverer. The index of Chapter X, as given in the table of contents, is inadequate to expose the real nature and importance of the subjects treated therein. In appearance, we have a simple enumeration of the alkaloids; in reality, we find the diagnosis between the alkaloids and the ptomaines. We regret having to call attention to such easily rectified oversights in a work of so much erudition and vital importance. We are sure the authors deserve the thanks of all interested in their subjects for their painstaking collation of so many interesting data.

### BOOKS, ETC., RECEIVED.

*History of the Life of D. Hayes Agnew, M. D., LL. D.* By J. Howe Adams, M. D. Philadelphia and London: The F. A. Davis Company, 1892. Pp. vii-276. [Price, \$2.50.]

*An Introduction to the Study of Diseases of the Skin.* By P. H. Pye-Smith, M. D., F. R. S., Fellow of the Royal College of Physicians and Physician to Guy's Hospital. Philadelphia: Lea Brothers & Co., 1893. Pp. x-13 to 408.

*Psychopathia Sexualis, with Especial Reference to Contrary Sexual Instinct: a Medico-legal Study.* By Dr. R. von Krafft-

\* Act, March 31, 1860, Sec. 180; Purdon's *Digest*, Sec. 356, p. 469.

Ebing, Professor of Psychiatry and Neurology, University of Vienna. Authorized Translation of the Seventh Enlarged and Revised German Edition, by Charles Gilbert Chaddock, M. D., Professor of Nervous and Mental Diseases, Marion-Sims College of Medicine, St. Louis, etc. Philadelphia and London: The F. A. Davis Company, 1893. Pp. xiv-436. [Price, \$3.]

Report of a Case of Tumor of the Left Frontal Lobe of the Cerebrum; Operation; Recovery. By J. Arthur Booth, M. D., New York, and B. Farquhar Curtis, M. D., New York. [Reprinted from the *Annals of Surgery*.]

Ripening of Immature Cataracts by Direct Trituration. By Boerne Bettman, M. D., Chicago. [Reprinted from the *Annals of Ophthalmology and Otolaryngology*.]

Lehrbuch der physiologischen Chemie mit Berücksichtigung der pathologischen Verhältnisse. Für Studierende und Aerzte. Von Richard Neumeister, Dr. med. et phil., Privatdocent an der Universität Jena. Erster Theil. Die Ernährung. Jena: Gustav Fischer, 1893. Pp. xii-337.

Report of Cases of Moral Imbecility, of the Opium Habit, and of Feigning, in which Forgery is the Offense committed. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Medical News*.]

Traumatic Myelitis. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Medical News*.]

A Materialistic View of Sexual Impotence. By Bransford Lewis, M. D., St. Louis, Mo. [Reprinted from the *Medical News*.]

Cholesteatoma of the Ear. By Harry Friedenwald, M. D., Baltimore, Md. [Reprinted from the *Medical News*.]

Tumor of the Hard Palate; Acute Appendicitis; Perinephritic Abscess. By W. W. Keen, M. D., Philadelphia. [Reprinted from the *International Clinician*.]

The Clinical Examination of Breast Milk. By L. Emmett Holt, M. D. [Reprinted from the *Archives of Pediatrics*.]

The Treatment of the Insane outside of Asylums. By Frederick Peterson, M. D., New York. [Reprinted from the *Medical News*.]

Report of a Case of Syringomyelia, with Exhibition of Sections of the Spinal Cord. By James Hendrie Lloyd, M. D., Philadelphia. [Reprinted from the *University Medical Magazine*.]

Two Years' Experience with Pelvic Massage in Gynecological Cases, with Reports of Cases. By Hiram N. Vineberg, M. D., New York. [Reprinted from the *American Journal of Obstetrics*.]

A Plea for a Just Estimate of the Value of Electrotherapeutics in Gynecology. By Hiram N. Vineberg, M. D., New York. [Reprinted from the *Journal of Obstetrics and Gynecology*.]

Atlas of Clinical Medicine. By Byrom Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Volume II. Part II. Edinburgh: T. & A. Constable, 1893. Pp. 45 to 90.

Lehrbuch der physiologischen Chemie mit Berücksichtigung der pathologischen Verhältnisse. Für Studierende und Aerzte. Von Richard Neumeister, Dr. med. et phil., Privatdocent an der Universität Jena. Erster Theil. Die Ernährung. Jena: Gustav Fischer, 1893. Pp. xii-337.

The Neuropathic Constitution, Education and Marriage as Factors in the Causation and Propagation of Nervous Diseases. By John Puntton, M. D., Kansas City, Mo. [Reprinted from the *St. Joseph Medical Herald*.]

The Therapeutical Value of the Mercurial Salts in General Surgery. By Thomas H. Manley, M. D., New York. [Reprinted from the *Times and Register*.]

Appendicitis. A Clinical Lecture at the New York Post-

graduate Medical School, February 11, 1893. By Robert T. Morris, M. D. [Reprinted from the *New England Medical Monthly*.]

The Medical Lore of Shakespeare. By R. Newton Hawley, M. D., Milwaukee, Wis. [Reprinted from the *Medical Age*.]

Scab Healing and its Application in General Surgery. By J. Delpratt Harris, M. R. C. S. Eng. London: H. K. Lewis, 1893.

Umbilical Hernia in the Female. With a Report of Five Cases. By A. Palmer Dudley, M. D., New York. [Reprinted from the *Transactions of the American Gynecological Society*.]

The Value of Javal's Ophthalmometer for the Correction of Astigmatism where Marked Amblyopia is Present. By A. Britton Deynard, M. D. [Reprinted from the *Post-graduate*.]

Something more on the Pathology and Treatment of Hemorrhoids, Fissures, Fistulas, and Ulcers in the Anorectal Region, with a Few Notes on Prolapsus Ani and Neoplasm. By Thomas H. Manley, M. D., New York. [Reprinted from the *Medical Brief*.]

Original Investigations in Cattle Diseases in Nebraska. Southern Cattle Plague. Third Edition. Revised and augmented with many New Investigations, and the True Place of the Tick as a Vehicle of Infection unquestionably demonstrated. By Frank S. Billings. [Animal Diseases Series No. V.]

Thirty-third Annual Report of the German Hospital of the City of Philadelphia, 1892.

List of Cases treated in the Good Samaritan Dispensary in the City of New York, from January 1, 1892, to January 1, 1893.

Second Annual Report of the Good Samaritan Dispensary in the City of New York for the Year 1892.

Fourteenth Annual Report of the Trustees of the Binghamton State Hospital, at Binghamton, N. Y., for the Year ending September 30, 1892.

Human Monstrosities. By Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania, and George A. Piersol, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part IV. Illustrated with Ten Photographic Reproductions and Forty-six Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. iv-151 to 220.

The International Medical Annual and Practitioner's Index: a Work of Reference for Medical Practitioners. By Various Authors. 1893. Eleventh Year. New York: E. B. Treat. Pp. 626. [Price, \$2.75.]

Modern Gynecology: a Treatise on Diseases of Women. Comprising the Results of the Latest Investigations and Treatment in this Branch of Medical Science. By Charles H. Bushong, M. D., Assistant Gynecologist to the Demilt Dispensary, New York, etc. Illustrated. New York: E. B. Treat, 1893. Pp. 16-17 to 380. [Price, \$2.75.]

The Meaning of the Method of Life. A Search for Religion in Biology. By George M. Gould, A. M., M. D. New York and London: G. P. Putnam's Sons, 1893. Pp. iii-297. [Price, \$1.75.]

Cholera, its Protean Aspects and its Management. By G. Archie Stockwell, F. Z. S. In Two Volumes. Vol. I and II. Detroit: George S. Davis, 1893. Pp. vii-306.

Methods of Precision in the Investigation of Disorders of Digestion. By J. H. Kellogg, M. D., Battle Creek, Mich. [Reprinted by the *Modern Medicine Publishing Company*.]

A Remarkable Respiration Record in Infantile Pneumonia. By William A. Edwards, M. D., San Diego, Cal. [Reprinted from the *Archives of Pediatrics*.]

Albuminate of Iron. By W. Blair Stewart, A. M., M. D., Philadelphia. [Reprinted from the *American Therapeutist*.]

Experiments with Cocaine Phenate as a Local Anæsthetic. By C. A. Veasey, M. D., Philadelphia. [Reprinted from the *Medical News*.]

A Foreign Body impacted in the Larynx Seventeen Months: Removal by Laryngo-tracheotomy: Recovery. By J. F. Kline-dinst, M. D., York, Pa. [Reprinted from the *Medical News*.]

Practical Experiments in the Treatment of Cholera in St. Petersburg, Russia, and Hamburg, Germany, in the Epileptic of 1892. By Elmer Lee, A. M., M. D., Chicago, Ill. [Reprinted from the *Medical Record*.]

## Miscellany.

**The Treatment of Suppuration in the Maxillary Antrum.**—In the April number of the *Dublin Journal of Medical Science* there is a translation, by Dr. Arthur W. Baker, of a chapter in a recent text book of dentistry by Professor Partsch, of Breslau, on Diseases of the Antrum.

The treatment of suppuration in the antrum must, in the first place, says the author, have for its object the removal of the cause. That an antrum should be treated by syringing it out while the carious roots of upper molars with inflamed root membranes are left alone, is without reason. The extraction of teeth proved to be diseased is to be carried out, unless they are to be treated conservatively, even if they only awaken the suspicion that they are engaged in the causation of an empyema of the antrum. Also stopped teeth, although they may excite no pain, may nevertheless be the cause of a circumscribed apical root-membrane inflammation, combined with proliferation of granulation tissue, and so exercise a constant irritation on the neighboring mucous membrane of the antrum. How often do we observe perfectly painless chronic swellings persisting on the jaw that are only maintained by such granulation proliferation!

The closest examination of the mouth and teeth of the affected half of the jaw must precede any therapeutic measure. A hasty view of the teeth does not suffice. Often carious defects are concealed on the approximate surfaces or under the gums by the necks of the teeth, and are only to be found by the most careful examination with mirror and probe. Frequently a stream of cold water reveals an exposed pulp with but a small concealed cavity, or a closer examination of a tooth shows an isolated sensibility of the root to pressure.

The least suspicion of a tooth in the range of the molars and bicuspids being affected warrants its extraction in a case where a unilateral purulent discharge is present. Extraction affords also an opportunity for opening the antrum. If the antrum is not already opened by the extraction, it may be perforated from the bottom of the socket with a chisel or strong trocar. I maintain that this method is more quickly carried out than perforating with the drilling engine, as it is hardly possible with the usual burring engine to bore with a thick drill through the hard bone. A vigorous thrust with chisel or trocar opens the cavity and provides, by a species of rotation movement, with the instrument already introduced, for a sufficient width of the canal. The anæsthesia produced by bromide of ethyl here renders excellent service.

I introduce at once into the passage a rubber drainage-tube which consists of a rubber plate vulcanized on at right angles to a drainage-tube, No. 1 or No. 2, having a small flap covering the end of the tube transversely. A drainage-tube, being drawn over a bulbous probe nearly to its upper end, is introduced with the probe into the canal. It lies close to the wall of the passage, and prevents the entrance of particles of food. Access to the tube is closed by the valve to substances entering from the mouth. The plate may be so cut that it lies well on the alveolar process and between the teeth. It prevents the drainage-tube from slipping up into the antrum and facilitates its removal if the canal is molded round it. From the first day the patient is able to syringe out the antrum, for he only needs to introduce the syringe into the drainage-tube underneath the free portion of the small valve flap, in order with ease to bring the stream into the antrum. On the with-

drawal of the syringe the flap places itself, in virtue of its elasticity, before the opening of the tube, and will be pressed close against it by every bite.

These cannulae have rendered me better service than ordinary drainage-tubes secured to the teeth with threads or bands, or metal tubes with plates for fastening to the teeth. To say nothing of their higher price and the impossibility of applying them in all cases, the latter have the disadvantage that they follow the mechanical working of the bite pressure much less easily, but exercise slight pressure in the bony canal. In using my rubber drainage-tube one has only to take care that the tube is not left too long, as otherwise it will not lie with its upper end on the floor of the antrum, but will reach into it.

Should the canal become covered with granulations the drainage-tube should be replaced by a thinner and more delicate one, which in like manner lies snugly against the alveolar process, but is not perforated throughout. I use for this purpose, what is already an article of commerce, the so-called artificial membrana tympani, according to Lucae, which is formed of a thin, delicate rubber tube carrying a plate which by virtue of its delicacy adheres lightly and securely to the mucous membrane of the alveolar process. The small tube is to be removed at each syringing; the syringing being accomplished, and after antiseptic cleansing, the tube is replaced. Thus the treatment may be carried on without inconvenience to the patient for weeks and months, as long as is requisite. It remains to be observed that the drainage-tube should not be allowed to remain in too long, as it is capable of acting as a foreign body and exciting the formation of pus. It should be removed as soon as the flow of pus is reduced to a minimum.

Contrasted with the opening of the antrum from the alveolar process, that from the nose offers the great advantage that particles of food can not lodge in the antrum; but it has the disadvantage that it is more difficult to perform, and the after-treatment is more complicated.

Against the contention of Zuckerkandl, based on anatomical facts, that the nasal opening should be made from the middle naris, since here the wall of the antrum may be most easily pierced, must be placed the clinical fact that any empyema, when possible, is to be opened at its lowest point, since otherwise—some secretion being always retained—its ultimate cure will be retarded, if not rendered impossible. It was this reason, perhaps, in addition to the technical difficulty, that caused Mikulicz to carry it out from the lower nasal passage; to him we are indebted for the reinvestigation of the opening of the antrum from the nose, which had been known to Hunter and Jourdain, and had then sunk into oblivion. Mikulicz bores through the nasal wall of the antrum in the inferior meatus with a stilette fitted at an obtuse angle to a curved handle. In the meatus the instrument is carried first with its point turned forward and downward—if it is kept close to the inferior turbinate bone—then the point is turned gradually outward so as to come round the lower border of the turbinate bone.

If by turning the handle outward one succeeds in passing under the turbinate bone, the wall of the antrum is at once perforated with a powerful thrust. Then one cuts out so much of the bony wall by planing and shaving movements that the instrument can move freely in and out in the opening just formed. An abnormal narrowing of the inferior naris, a considerable hypertrophy of the inferior turbinate bone, or an unusual thickening of the bony wall between the antrum and the inferior meatus, may render the operation itself difficult or impossible (Mikulicz).

From the opening the antrum is daily syringed out with a ball syringe until the cure of the catarrh is complete.

The circumstance that in the after-treatment the necessary syringing of the antrum must always be carried out by the physician, or under the direction of the physician, has called forth various changes of the method.

Firstly, Krause has modified the instrument by giving it the form of a curved trocar, and by using it for perforation, after the withdrawal of the stilette, the cannula can remain, and at once the syringing of the antrum may be commenced. The search for the opening that has been made by Mikulicz's method, in order to introduce the ball syringe, on account of the certain bleeding, is a disadvantage.

After the withdrawal of the cannula, in order that the troublesome introduction of the catheter for syringing through the opening formed



by perforation may be dispensed with, I have introduced at once a full-sized celluloid tube through the cannula itself, pushed as far as the posterior wall of the antrum. If the tube selected is very long (the best celluloid catheters in the market are to be used for the purpose), it is easy while the tube is pressed toward the antrum to draw down the cannula over the tube, the celluloid tube being cut sufficiently short to be concealed in the outer naris in the corner between the cartilaginous septum and the ala nasi. So the patient carries it without trouble from four to six weeks, so long as treatment is necessary—the patient being in the position to perform the syringing for himself.

Being placed in front of the mirror, he presses the point of the nose upward, and by dint of practice causes the opening of the little tube to become visible, which usually is hidden in the meatus of the nose. In it he fixes the cannula of his syringing apparatus. Larger sizes can easily be introduced for any desirable dilatation of the communicating passage. My colleague, Schwartz, to whom I have communicated this method, has been so kind as to adopt it and recommend it warmly. He has also decidedly improved Krause's instrument. The old instrument had the disadvantage that, particularly where a strong push was necessary to bore through into the antrum, the tapering trocar stopped at its upper end and the opening of the cannula no longer closely fitted it, so that in the thrust of the instrument the edge of the cannula was turned up by the stilette pierced the wall of the jaw.

Schwartz, then, has removed these really practical drawbacks to the operation by making the trocar completely solid; and, in order to turn the curved cannula over the firm trocar, at present the cannula is made jointed, like König's long tracheal cannula.

This modification necessitates, in order that the cannula could be easily removed and drawn back over the celluloid tube, a rigid guide-rod inside the jointed segments of the cannula. This instrument is now so modified as to prove very useful, and I intend to use it exclusively.

When in one of these ways the passage to the antrum has been formed, then comes the task of removing the purulent contents of the antrum, and so far allaying the catarrhal irritation or purulent inflammation of the mucous membrane of the antrum that no further fluid will be secreted.

The first task is that most easily performed. Then the cavity at once after the opening may be washed out with a warm antiseptic solution as unirritating as possible, or sterilized Koch's solution of salt water 0.6 per cent., the injection requiring a greater or less amount of pressure according to the consistence of the pus and the capacity of the natural opening of the antrum, which generally will readily be perceived by the patient himself.

It is often necessary, owing to the thickened mass of pus and to a considerable narrowing of the orifice, for a long time to elapse before the injection runs out clear.

An offensive odor often betrays to what great extent decomposition has taken place in the pus. The patient perceives after the removal of this substance that he is evidently lighter—he forgets, in the disappearance of the heavy pressure, and in being free from the tormenting smell, the momentary pain of the operation. Generally the majority of patients present a lively and cheerful appearance on the day succeeding the operation. Then comes the often more troublesome task for the physician—to bring about the complete cure of the suppuration. Often it can be accomplished by blowing out through the antrum, but only if the perforation has been made from the alveolar process. If the patient is told to drive air from the nose while compressing both the outer nares, then, owing to the free communication of the antrum with the nasal cavity, it goes through the canal which has been formed to the mouth, and it carries with it the accumulated pus.

In other cases syringing must be employed in order to bring about a cessation of the suppuration. While this in many cases succeeds very quickly, in others it takes an endless amount of trouble and severely tests the patience of the sufferer as well as the physician. It is these cases which always occasion the recommendation of new remedies that are said to have a special action on suppuration in the antrum.

Solutions are recommended and employed, such as boric acid, salicylic acid, permanganate of potassium, sorbiodide of zinc, nitrate of silver, pyocetanin, peroxide of hydrogen, corrosive sublimate, Rotter's

solution—briefly, every newly puffed antiseptic. As a washing-out apparatus, I have made use of a form of douche which has a rubber ball and pointed injection tube. It may also readily be employed as a syringe by compression on the upper part of the ball in cases where stronger pressure is requisite. That in obstinate cases the treatment with dry antiseptics, iodoform, or iodol—as has been recommended by Krause and Friedländer—will always attain its object, to my experience appears questionable. I have also lately used the dry “dermatol” (subgallate of bismuth), but without apparent result. The powder treatment of suppuration of the antrum, which has also its advantages—principally that the patient is saved the troublesome syringing—is to be conducted in this manner. The antrum having been perforated with a strong trocar, and the cavity thoroughly cleansed of its purulent contents by means of Kabier's insufflator, with which is combined a special close-fitting mouthpiece, a large quantity of iodoform or iodol is introduced into the antrum and distributed over it, and it is closed. According to the requirements of the case, after a delay of from three to four days, a similar insufflation may be performed again. The sozodiolide of zinc, unfortunately, is said to form into a mass, and therefore is of little use for this purpose. It would be desirable to find a substitute for iodoform, as certain persons have such a strong idiosyncrasy with regard to iodoform that they begin to complain of headache, giddiness, vomiting, and loss of appetite, besides the constant unpleasant mixture of iodoform with the breath, and the fact that each meal tastes of iodoform. The odorless dermatol has in this instance not yet proved a substitute for iodoform.

The obstinacy of certain cases depends probably on the anatomical changes of the mucous membrane of the antrum, either inflammatory or of the nature of a tumor. For their cure energetic measures will be necessary. They possibly may be treated by making a free passage to the antrum by a wide opening of the facial wall. This method, inaugurated by Desault, has lately been warmly advocated by Küster. Küster has improved it by carrying it out superioerostically.

After a previous application of cocaine, a flap of mucous membrane having its base above is to be traced out, extending from the first bicuspid to the first molar; the periosteum is raised with an elevator, and while the flap is retracted strongly upward, the antrum is laid open with chisel and hammer. The opening thus punched out should be made sufficiently wide that the finger may be introduced to explore the antrum. I prefer to illuminate the antrum from the opening with the usual electric-light apparatus for the ear or urethra, and to inspect the walls closely. This illumination of the antrum is far more useful than its transillumination. Then whatever one finds as the cause of the suppuration in the antrum—necrosis, roots of teeth, unerupted teeth, foreign bodies, tumors of various kinds, etc.—it is self-evident must be removed. Also the pus may be thoroughly evacuated. If the cavity is then filled with a loose plug of iodoform gauze, the previous severe suppuration seems to vanish quickly and rapidly, as well as all its accompanying complaints. For the after-treatment I have used the drainage-tubes already previously mentioned, but with the difference that I order them to be so manufactured that the plate is not fastened horizontally, but obliquely on the rubber tube, in order that they can be easily pushed into the cavity; only the upper half of the plate must be entirely cut off, there being no room for it vertically, since the opening always lies high on the reflected fold of the oral cavity.

Gradually the opening which has been made so large contracts to the extent that only a medium-sized canal remains, through which the drainage-tube may easily be pushed in and out. A patient has already carried a cannula without inconvenience over a year and a day, and can not be induced to allow it to be removed, as she fears the return of her old complaint, although she feels perfectly well.

The rubber drainage-tube remains perfectly steady by itself, and need neither be fixed by an artificial plate nor fastened round the teeth by threads.

This operation must be reserved for the severest cases of suppuration of the antrum and for the removal of foreign bodies and tumors. For the latter cases it is the only rational one.

The Texas State Medical Association will hold its twenty-fifth annual meeting in Galveston on Tuesday, Wednesday, Thursday, and Fri-

day, May 2d, 3d, 4th, and 5th, under the presidency of Dr. J. D. Osborn, of Cleburne. The preliminary programme is as follows:

*Section in General Medicine.*—Report of the chairman, Dr. J. C. Loggins, of Ennis; The Association of Diseases and Morbid Processes, by Dr. H. A. West, of Galveston; The Action and Uses of Pental, by Dr. David Cerna, of Galveston; Metastasis in Cancer of the Stomach, by Dr. Allen J. Smith, of Galveston; The Continued Fevers of Texas Classified, by Dr. B. F. Brittain, of Baird; A Study of the Factors concerned in the Reconversion of Peptone into Albumin, and their Relation to Certain Organic Diseases, by Dr. James Kennedy, of San Antonio; Opium Suicides, their Prevention and Treatment—Report of Fifteen Cases, by Dr. E. W. Capps, of Fort Worth; Report of Ten Cases of Membranous Croup, with Remarks on Treatment, by Dr. I. E. Clark, of Schulenburg; Concussion of the Spine, by Dr. C. H. Wilkinson, of Galveston.

*Section in Obstetrics and Diseases of Children.*—Report of the chairman, Dr. Irvin Pope, of Tyler; The Influence of Development in Diseases, by Dr. H. P. Cooke, of Galveston; Paracentesis Capitis in Hydrocephalus—Report of a Case, by Dr. N. A. Olive, of Waco; Placenta Prævia, with New Instruments for treating the Same, by Dr. Q. E. Smith, of Austin.

*Section in Surgery.*—Report of the chairman, Dr. A. F. Gardner, of Bellville; Whitehead's Operation for Hemorrhoids considered from an Anatomical and Pathological Standpoint, by Mr. James E. Thompson, of Galveston; Rapid Operating as a Factor in Surgical Success, by Dr. A. Morgan Cartledge, of Louisville, Ky.; A Case of Splenectomy, with Recovery, by Dr. J. F. Y. Paine, of Galveston; The Treatment of Depressed Fractures of the Skull, by Dr. P. C. Coleman, of Colorado; Gunshot Wound of the Chest and Spine, by Dr. J. E. Prince, of Big Springs; The Treatment of Tetanus, by Dr. George H. Lee, of Galveston; The Treatment of Perforating Typhoid Ulceration by Operative Measures, by Mr. James E. Thompson, of Galveston; A Modified Whitehead's Operation for Hemorrhoids, by Dr. A. F. Sampson, of Galveston; Bone Excision in the Forearm, by Dr. W. R. Blalock, of McGregor; Incised Wound of the Abdomen—Removal of One Third of the Omentum—Recovery, by Dr. I. E. Clark, of Schulenburg; Moist Gangrene with Amputation, by Dr. J. D. Osborn, of Cleburne.

*Section in Medical Jurisprudence.*—Progress made in the Treatment of the Insane, by Dr. John Preston, chairman; Hypnotism, by Dr. Matthew M. Smith, of Austin; Transverse Myelitis, with Cases, by Dr. Allen J. Smith, of Galveston.

*Section in State Medicine, etc.*—Report of the chairman, Dr. C. M. Rosser, of Dallas; Some Thoughts on Higher Medical Education and Medical Ethics, by Dr. David Cerna, of Galveston.

*Section in Gynecology.*—Address of the chairman, Dr. J. F. Y. Paine, of Galveston; The Pathology and Treatment of Intrapelvic Inflammation in Women, by Dr. Louis McMurtry, of Louisville, Ky.; A Contribution to the Pathology of the Fourchette, by Dr. B. E. Hadra, of Galveston; Rupture of the Perineum, by Dr. B. H. Vaughan, of Vaughan; Two Cases of Unilateral Oophorectomy, with Practical Deductions pertaining thereto, by Dr. J. Cummings, of Austin; Cervical and Corporal Endometritis, by Dr. W. M. Cunningham, of Bastrop; Preventive Gynecology—Important Factors in the Causation of Uterine Disorders and Neurasthenia, by Dr. M. S. Scott, of Brownwood; The Use of Electrolysis in Stenosis of the Cervix Uteri, by Dr. Arthur S. Wolff, of Brownville; Pelvic Peritonitis and Cellulitis, by Mr. W. Keiler, of Galveston.

*Section in Ophthalmology and Otology.*—A Contribution to the Study of Insufficiencies of the Ocular Muscles and the Measures directed to their Relief, by Dr. G. P. Hall, of Galveston; Trachoma, or Granular Conjunctivitis, by Dr. R. E. Houghton, of Midland; Paralysis of Accommodation as a Sequela, by Dr. W. Caston, of Corsicana; Neurosis of the Eye due to Stricture of the Male Urethra, with Cases, by Dr. John V. Spring, of San Antonio; Otitis and its Treatment, by Dr. W. H. Monday, of Terrell; Aural Catarrh, the Importance of Early Recognition and Treatment, by Dr. W. H. Baldinger, of Galveston.

*Section in Dermatology, etc.*—Report of the chairman, Dr. R. W. Knox, of Houston; Acne, by Dr. F. E. Daniel, of Austin; Circumcision, by Dr. R. W. Knox, of Houston.

*Section in Microscopy and Pathology.*—Histological Demonstrations of Malignant Tumors, by Dr. Allen J. Smith, of Galveston.

**The Pan-American Medical Congress.**—The Section in Marine Hygiene and Quarantine has been organized as follows: Honorary presidents: Dr. Lino Alarco, Lima, Peru; Dr. Henry B. Baker, Lansing, Mich.; Dr. Cardeñas, Managua, Nicaragua; Dr. J. J. Cornilliac, St. Pierre, Martinique, F. W. I.; Dr. Felix Formento, New Orleans; Dr. H. B. Horlbeck, Charleston; Lieutenant-Colonel Anafio Lorenz, Sub-inspector of second class Spanish Navy, Havana; Dr. F. Montizambert, Quebec, Canada; Dr. Francisco Nuñez, St. Tecla, Salvador; Dr. Juan Ortego, Guatemala, Guatemala; Dr. Joseph Y. Porter, Jacksonville, Fla.; Dr. John Pringle, Kingston, Jamaica; Dr. Juan J. Unoa, San José, Costa Rica; Dr. J. Mills Browne, Surgeon General, United States Navy. Executive president: Dr. Walter Wyman, Surgeon General, United States Marine-Hospital Service, Washington. Secretaries: Dr. S. T. Armstrong (English-speaking), 166 West Fifty-fourth Street, New York; Dr. G. M. Guitéras (Spanish-speaking), United States Marine-Hospital Service, Washington. Advisory Council: Dr. H. M. Biggs, New York city; Dr. John C. Boyd, United States Navy; Dr. H. R. Carter, Norfolk, Va.; Dr. W. M. L. Coplin, Philadelphia; Dr. A. G. Clopton, Galveston, Texas; Dr. C. G. Currier, New York; Dr. S. Durgin, Boston; Dr. Seneca Egbert, Boston; Dr. George Homan, St. Louis; Dr. W. T. Jenkins, New York; Dr. J. F. McShane, Baltimore; Dr. G. H. F. Nuttall, Baltimore; Dr. S. R. Olliphant, New Orleans; Dr. Dabney Scales, Mobile; Dr. R. M. Swearingen, Austin, Tex.

The executive president desires to call the attention of all members of the medical profession that are interested in the topics pertaining to this section to the regulation of the congress, that contributors are required to forward, not later than July 1st, to the secretary of the section, abstracts, not to exceed six hundred words each, of the papers they propose to present before the section.

The topics that will be considered by this section are as follows: 1. The hygiene of vessels, commercial or naval, including the questions of ventilation, heating, sanitary arrangements, the disposal of cargo so as to facilitate disinfection, food supply, etc. 2. The medical officers of passenger vessels; methods for their selection, duties, etc. 3. The vital statistics of seamen and firemen. The question of the medical examination of crews preparatory to shipping. 4. The supervision of vessels by government medical inspectors at ports of arrival and of departure. Code of rules for handling an epidemic disease that breaks out on shipboard. Disinfection of passengers and crew during a voyage. Location and arrangement of ships' hospitals. 5. Epidemic and exotic diseases propagated by shipping. What diseases should be quarantined. Responsibility of nations for epidemics; India for cholera, South America for yellow fever. Can a feasible plan be devised to totally exterminate cholera? International intervention to prevent the propagation of cholera or other epidemic diseases by pilgrimages or immigration. 6. International uniformity in quarantine regulations. Should quarantine officers be notaries public? 7. Arrangement of detail and equipment of quarantine stations: *a*, inspection stations; *b*, local quarantine stations; *c*, refuge stations. Methods for handling infected or suspected vessels. Interstate and inland quarantine: sanitary cordons; camps of refuge; camps of probation. Recent improvements in hospitals for infectious diseases. Railroad inspection and quarantine. Length of time vessels should be held in quarantine. Conditions that should determine proclamation of quarantine against a country. Under what requirements may passenger traffic be carried on between a port infected with yellow fever and a Southern port of the United States during the summer with the least obstruction to such traffic? What merchandise should be considered as requiring treatment if shipped from a port or place infected with cholera, yellow fever, or small-pox? 8. Methods of disinfection: *a*, persons; *b*, baggage; *c*, cargoes; *d*, vessels. Recent improvements in quarantine appliances; steam chambers; sulphur furnaces. Liquid sulphur dioxide as a disinfectant. Treatment of ballast: water: solid. What time should an infected vessel be detained in quarantine? *a*, for cholera; *b*, for small-pox; *c*, for typhus fever; *d*, for plague; *e*, for yellow fever. Methods of disposal of the bodies of those that die while in quarantine.

**A Proposed Act to Amend the Coroner's System of New York City.**—At the meeting of the Section in Public Health, Legal Medicine, and

Medical and Vital Statistics of the Academy of Medicine, held on March 1st, a committee, consisting of Dr. Stephen Smith (chairman), Dr. John Winters Brannan, and Dr. F. H. Dillingham (secretary), was appointed to make certain amendments to a bill introduced into the New York State Assembly by Mr. Kemper. This bill provided for the transfer of certain duties, now performed by the coroners of the city and county of New York, to the board of health of that city; but the committee found that certain of the provisions of the bill were unconstitutional, while there was insufficient detail regarding other matters essential to accomplish the desired end. The question was carefully considered and the committee made its report on April 19th, in the form of the amended bill given below. This report was unanimously adopted by the section, and it was presented to the academy at the general meeting held on April 20th, with the recommendation that it be received, ordered to be printed so as to be presented to the fellows of the academy for careful consideration, and transmitted to other local medical societies so that their co-operation might be asked for in order to accomplish the reform evidently demanded in the administration of the office.

An Act to transfer certain Duties now performed by the Coroners of the City and County of New York to the Board of Health, and to define the Method of Procedure in Cases of Sudden or Violent Deaths.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. In all cases in which a coroner of the city and county of New York, or a coroner's physician, was heretofore required by law to make a medical examination, and in all cases mentioned in section seven hundred and seventy-three of the Code of Criminal Procedure, the board of health of said city and county shall have complete jurisdiction and authority. Said board, by one or more of its physicians, appointed as hereinafter provided, shall perform the duties and make the examinations required by said section, and shall proceed without the aid or assistance of jurors. Said physicians shall make duplicate reports of their examinations and all of their proceedings, stating therein the cause of injury or death, and file one copy with the board of health and the other with the district attorney of said city and county.

SEC. 2. The board of health of said city and county of New York is hereby authorized to create a bureau to be known as the "Bureau of Inquest," and to appoint five competent physicians, to be known as "Inquest Physicians," who shall receive a salary not exceeding the sum of three thousand dollars each, and a clerk, to be known as the "Inquest Clerk," who shall keep a complete record of all inquests, and shall receive a salary not exceeding the sum of two thousand dollars, such salaries to be appropriated by the Board of Estimate and Apportionment when fixing their provisional and final estimates for the board of health.

SEC. 3. All the duties and jurisdiction heretofore vested in a coroner or the coroners of the city and county of New York, affecting civil actions, proceedings and writs, and the service and execution thereof, shall be performed by and repose in the "collector of assessments and clerk of arrears" of said city and county.

SEC. 4. It shall be the duty of any citizen in the city and county of New York, who may become aware of the death of a person who shall have died from criminal violence, or by a casualty, or suddenly when in apparent health, or when unattended by a physician, or in prison, or in any suspicious or unusual manner, to report such death forthwith to the Bureau of Inquest, or to any police officer, who shall notify the Bureau of Inquest without delay of such death; and any person who shall willfully neglect or refuse to report such death as above required shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment for a period not exceeding one year or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

SEC. 5. Any person in said city and county, except an inquest physician, who shall willfully touch, remove, or disturb the body of any one who shall have died in the manner described in the last section, or who shall willfully touch, remove, or disturb the clothing, or any article upon or near such body, without a written order from an inquest physician,

shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment for a period not exceeding one year, or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

SEC. 6. Whenever information is given at the Bureau of Inquests of the Board of Health that there has been found, or is lying, within the jurisdiction of said board, the dead body of a person who is supposed to have come to his death by violence, an inquest physician shall forthwith repair to the place where such body lies and take charge of the same, and if on view thereof and personal inquiry into the cause and manner of the death, he deems a further examination necessary, he shall in the presence of two or more discreet persons, whose attendance he may compel by subpoena if necessary, make an autopsy, and then and there reduce to writing every fact and circumstance tending to show the condition of the body, and cause and manner of death, together with the names and addresses of said witnesses, which record he shall subscribe. Before making such autopsy, he shall call the attention of said witnesses to the position and appearance of the body.

SEC. 7. If upon such view, personal inquiry, or autopsy, he shall be of opinion that the death was caused by violence, he shall at once notify one of the coroners of the city and county of New York, and shall file a duly attested copy of the record of his examination and autopsy in the office of said coroners, in addition to the reports made in accordance with section first of this act. The coroner shall thereupon hold an inquest which shall consist of the testimony of the inquest physician, and that of any other witnesses that the coroner may find necessary. Said inquest may be private, in which case any or all persons other than those required to be present by the provisions of this act may be excluded from the place where the same is held, and said coroner may also direct the witnesses to be kept separate so that they can not converse with each other until they have been examined. The district attorney, or some person designated by him, shall attend the inquest, and may examine all witnesses.

SEC. 8. The coroner shall have power to issue subpoenas for witnesses, returnable either forthwith or at such time and place as he shall appoint therein, and it shall be the duty of the coroner to give due notice of the time and place of the inquest to the inquest physician who examined and reported on the case, and it shall be the duty of said physician to attend said inquest.

SEC. 9. The coroner shall, after hearing the testimony, draw up and sign a report, in which he shall find and certify when, where, and by what means the person deceased came to his death, his name, if known, and all material circumstances attending his death; and if it appears that his death resulted wholly or in part from the unlawful act of any person, he shall further state, if known to him, the name of such person, and of any person whose unlawful act contributed to such death, which report shall be returned by him to the office of the District Attorney of the City and County of New York.

SEC. 10. Any police justice in the city and county of New York is hereby authorized and empowered, in case the attendance of a coroner can not be procured within twelve hours after the discovery of a dead body, upon which an inquest is now by law required to be held, to hold an inquest thereon, in the same manner and with the like force and effect as coroners.

SEC. 11. From and after the passage of this act no person shall be eligible to the office of coroner who is not a duly qualified lawyer.

SEC. 12. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 13. This act shall take effect on the expiration of the terms of office for which the present coroners of the city and county of New York were respectively elected.

**Important Prizes offered by the Smithsonian Institution.**—The *Scientific American* publishes the following: "In October, 1891, Thomas George Hodgkins, Esq., of Setauket, N. Y., made a donation to the Smithsonian Institution, the income from a part of which was to be devoted 'to the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man.'

"With the intent of furthering the donor's wishes, the Smithsonian



Institution now announces the following prizes to be awarded on or after July 1, 1894, should satisfactory papers be offered in competition:

"1. A prize of \$10,000 for a treatise embodying some new and important discovery in regard to the nature or properties of atmospheric air. These properties may be considered in their bearing upon any or all of the sciences—*e. g.*, not only in regard to meteorology, but in connection with hygiene, or with any department whatever of biological or physical knowledge.

"2. A prize of \$2,000 for the most satisfactory essay upon—

"(a) The known properties of atmospheric air considered in their relationships to research in every department of natural science, and the importance of a study of the atmosphere considered in view of these relationships.

"(b) The proper direction of future research in connection with the imperfections of our knowledge of atmospheric air, and of the connections of that knowledge with other sciences.

"The essay, as a whole, should tend to indicate the path best calculated to lead to worthy results in connection with the future administration of the Hodgkins foundation.

"3. A prize of \$1,000 for the best popular treatise upon atmospheric air, its properties and relationships (including those to hygiene, physical and mental). This essay need not exceed 20,000 words in length; it should be written in simple language, and be suitable for publication for popular instruction.

"4. A medal will be established, under the name of The Hodgkins Medal of the Smithsonian Institution, which will be awarded annually or biennially, for important contributions to our knowledge of the nature and properties of atmospheric air, or for practical applications of our existing knowledge of them to the welfare of mankind. This medal will be of gold, and will be accompanied by a duplicate impression in silver or bronze.

"The treatises may be written in English, French, German, or Italian, and should be sent to the Secretary of the Smithsonian Institution, Washington, before July 1, 1894, except those in competition for the first prize, the sending of which may be delayed until December 31, 1894.

"The papers will be examined, and prizes awarded, by a committee to be appointed as follows: One member by the secretary of the Smithsonian Institution, one member by the president of the National Academy of Sciences, one by the president, *pro tempore*, of the American Association for the Advancement of Science; and the committee will act together with the secretary of the Smithsonian Institution as member *ex officio*. The right is reserved to award no prize if, in the judgment of the committee, no contribution is offered of sufficient merit to warrant an award. An advisory committee of not more than three European men of science may be added at the discretion of the committee of award.

"If no disposition be made of the first prize at the time now announced, the institution may continue it until a later date, should it be made evident that important investigations relative to its object are in progress, the results of which it is intended to offer in competition for the prize. The Smithsonian Institution reserves the right to limit or modify the conditions for this prize after December 1, 1894, should it be found necessary. Should any of the minor prizes not be awarded to papers sent in before July 1, 1894, the said prizes will be withdrawn from competition.

"A principal motive for offering these prizes is to call attention to the Hodgkins Fund and the purposes for which it exists, and accordingly this circular is sent to the principal universities and to all learned societies known to the institution, as well as to representative men of science in every nation. Suggestions and recommendations in regard to the most effective application of this fund are invited.

"It is probable that special grants of money may be made to specialists engaged in original investigation upon atmospheric air and its properties. Applications for grants of this nature should have the indorsement of some recognized academy of sciences, or other institution of learning, and should be accompanied by evidences of the capacity of the applicant, in the form of at least one memoir already published by him, based upon original investigation.

"To prevent misapprehension of the founder's wishes it is repeated

that the discoveries or applications proper to be brought to the consideration of the committee of award may be in the field of any science or any part without restriction; provided only that they have to do with 'the nature and properties of atmospheric air in connection with the welfare of man.'

"Information of any kind desired by persons intending to become competitors will be furnished on application. All communications in regard to the Hodgkins Fund, the Hodgkins Prizes, the Hodgkins Medals, and the Hodgkins Fund Publications, or applications for grants of money should be addressed to S. P. Langley, Secretary of the Smithsonian Institution, Washington."

**A Prescription for Migraine.**—The *Practitioner* gives the following formula: Butylchloral hydrate, fifteen grains; tincture of gelsemium, thirty minims; tincture of cannabis indica, fifteen minims; glycerin, four fluidrachms; water, enough to make three fluidounces. Mix. A third part to be taken at once, and the dose to be repeated in half an hour.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

## Lectures and Addresses.

### APPENDICITIS:

A CLINICAL LECTURE AT THE POST-GRADUATE MEDICAL SCHOOL,  
January 14, 1893.

By ROBERT T. MORRIS, A. M., M. D.

GENTLEMEN: Before proceeding to remove this patient's appendix vermiformis, let us briefly review some of the salient points of these cases.

*First.*—Acute peritonitis in the male means appendicitis, no matter whether there is tenderness at McBurney's point or not. That is a rule. We may occasionally find an exception in a case of acute trichinosis, or in some equally rare complication; but the more one sees of appendicitis the less he sees of other causes for acute peritonitis.

I formerly made the diagnosis of cæcitis and perityphlitis and idiopathic peritonitis, but whenever opportunity came for real observation my cases all proved to be appendicitis in pristine purity of character. A physician of large practice not long ago told me that he did not have cases of true appendicitis. I had an argument with him upon the subject, and since that time have removed several perforated or sloughing appendices at his request. This patient was recently treated for three weeks as a case of typhoid fever. The appendicitis patient who formed the subject for my lecture two weeks ago was thought to have idiopathic peritonitis without known cause by a council of physicians, but you saw the true cause here. A physician has written me to-day asking if I will remove some gall stones for his wife; but the description of the case has led me to prepare for removing her appendix.

*Second.*—Appendicitis is apparently less common in the female than in the male, but there are many excuses for another diagnosis in women.

*Third.*—The reason why the symptom of local tenderness may be misleading is because the perforating appendix tip may be attached to the liver, or it may be in a hernial sac down in the patient's scrotum, or it may be rolled all in a heap with the left ovary and tube.

You all remember one of my recent cases in which the tip of the appendix was attached near its own base to the cæcum, which it had perforated, completing a hollow loop, like the handle of a Peruvian jug.

*Fourth.*—Anything that causes the mucous membrane of the appendix to swell may cause necrosis. The mucous membrane forms a soft, distensible tube within a tube of muscle and peritonæum, which is less elastic. A simple catarrh of the intestine may cause this mucous tube to choke itself to death within the inelastic tube. A seed or a faecal concretion may start the swelling, and I have no doubt that many cases of real typhoid and of dysentery die of appendicitis.

*Fifth.*—Whenever we have colicky pains in an attack of appendicitis I believe that it means spasm of the muscular sheath of the tube and a sympathizing intestine. Sloughs, large or small, are usually thrown off from the

mucous membrane of the tube in an attack of appendicitis. If they escape into the bowel, a granulating ulcer is left, and the patient recovers (temporarily). If the slough escapes through the walls of the appendix, the patient dies unless adhesions have protected him. If lymph exudate walls in the site of the perforation, an abscess forms, and this can be absorbed leisurely—lymph, pus, slough, and all—but it is so risky for the patient that we must not allow Nature to have her way.

*Sixth.*—The reason why we should remove the appendix as soon as the diagnosis of appendicitis is made is because we never can tell when or where perforation will occur, and we never know whether the products of inflammation are going to kill or not.

*Seventh.*—The reason why the appendix should be removed between attacks in recurrent cases is because the death rate ought not to be above one per cent. at such times, and the mortality rate must be much higher when we are dealing with perforations and large septic abscesses.

This patient wanted an operation after he had recovered from his typhoid fever, because there was a tender spot in the right groin that always needed protection. Besides that, he did not want to be constantly in dread of another attack of appendicitis. Aside from the danger and the dread of other attacks, he did not want to lose the time necessary for recovery from subsequent attacks.

In the case of two weeks ago the patient had been sent to me last year in an interval between attacks, and it was left to my judgment to decide whether to operate then or not. With that false idea of conservatism that is so hard to overcome, I decided to wait until the patient had acute symptoms again. When the appendicitis again flared up, and after I had removed a suppurating mass of green lymph exudate and a rankly poisonous perforated appendix, the father of the patient came to me and asked if I had really used good judgment in deferring operation until that time.

In proceeding with the operation upon the patient who is before you, I hope that the reason for each step will be apparent without much explanation. In the first place, the patient is placed in Trendelenburg's posture, because that will allow me to separate adhesions and to work by sight without disturbing the intestines. In the case of two weeks ago, in which there was green fetid pus and a large mass of lymph exudate, Trendelenburg's posture allowed me to open four separate abscesses and to clean out the abscess cavities with peroxide of hydrogen, and finally to skin out the "area of dullness" and the necrotic appendix in one lump without endangering the general peritoneal cavity.

The usual incision over the normal base of the appendix having been made, I now lift the appendix out of the peritoneal cavity, and you will observe that it is swollen and red. About an inch of the tip is free, and about two inches and a half of the tube are bound to the cæcum in a spiral form with very strong adhesions. The mesentery of the protruding tip is grasped with forceps, and adhesions are stripped away until the appendix is entirely free. The mesentery of the appendix is ligated close to the cæcum,

and I now snip through two coats of the appendix well down into the cæcum. If any appendix tissue were left, it would very likely perforate later beneath a ligature. The



FIG. 1.—Perforated appendix and "area of dullness" removed in one mass and showing the openings of two of the abscess cavities.

mucous tube now being put upon the stretch, it is ligated fairly down to the cæcal mucous membrane, and then snipped off close to the ligature. That cuts off danger of contamination from the intestine.

The next step consists in scarifying the peritoneum all about the vicinity of the knot with the point of a needle so that we are sure of an abundant exudation of cement after the sutures are in place. Sutures are now passed through the scarified cæcum in such a way that the old site of the appendix is deeply and safely buried with the Lembert closure. Aristol is sprinkled along the line of sutures. If we simply ligated the base of an appendix and did not bury the stump, you can readily see that that point would be the weakest part of the intestine after repair was complete. A sort of Eskimo window would be left, through which the intestinal microbes could peer out into the peritoneal cavity.

In closing the abdominal wound we follow a surgical law which demands that tissues be replaced in good order, and consequently I suture the cut margins of each structure separately, giving particular attention to the superficial fascia—the seamless bag which holds the patient's abdomen together.

This method of suturing saves time—not to-day, to be sure, for it has required more time than all of the rest of the operation. It saves time because we shall not have to do a secondary operation next year for the relief of a hernia at the site of the incision.

Our work having been completed, I now split open the appendix for examination. As the peritoneal and muscular coats are divided, the mucous tube quickly springs into

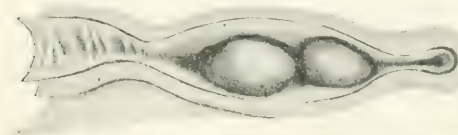


FIG. 2.—Appendix laid open to show contents and scar-strictures.

the incision, showing what pressure it has been subjected to. The mucous tube being split, we find one whole seed and part of another covered with hard fecal matter. The

seeds are evidently those of a small melon. Half an inch from the tip of the appendix there is a stricture which closes the canal and which marks the point from which a mucous slough separated at some former time. Near the cæcal end of the tube another stricture similar in character effectually prevented the expulsion of the seeds. The mucous membrane of the pouch which contained the seeds is studded with red dots, showing what fires were smoldering there.

*Note.*—Since the presentation of this article for publication the author has completed a series of investigations which prove that appendicitis is an infectious exudative inflammation, commonly terminating in connective-tissue replacement of the mucosa of the appendix when the accidents of rapid necrosis do not cause a different ending.

## Original Communications.

### ON THE PRACTICAL VALUE OF THE NEWER METHODS OF EXAMINATION IN THE DISEASES OF THE STOMACH,

WITH A CONSIDERATION OF THE  
INDICATIONS GIVEN FOR DIET AND TREATMENT BY SUCH EXAMINATIONS.

*Being part of a Discussion on the Newer Methods of  
Diagnosis and Treatment of Stomach and Intestinal Diseases.\**

By HENRY L. ELSNER, M.D.,

PROFESSOR OF CLINICAL MEDICINE, SYRACUSE MEDICAL COLLEGE;  
PHYSICIAN TO ST. JOSEPH'S HOSPITAL;  
CONSULTING PHYSICIAN TO ST. ANN'S HOSPITAL, SYRACUSE, N. Y.

THE subject which by your courtesy it is my privilege to introduce for discussion to-day is one which is so full of interest and so important alike to the physician and the surgeon that I approach it with fear and a consciousness of weakness, which increases as I compare my feeble efforts with those which others might have made for your greater enlightenment. Having accepted your invitation, I shall discuss the practical value of the newer methods of examination in diseases of the stomach, and the indications given by such examinations for diet and treatment, impartially, with the view of formulating such conclusions as may appear justified, and a desire to stimulate in the profession a more careful and scientific study of the available methods of diagnosis in stomach diseases.

The great aim of the modern scientific physician is to understand symptoms so thoroughly that it becomes possible for him to localize lesions exactly, or to detect faulty functions with equal certainty.

With the discovery of free hydrochloric acid in the gastric mucus by Prout in 1824, and the demonstration of pepsin by Schwann in 1836, the first data for an ultimate and more thorough understanding of the physiological and chemical functions of the stomach were given. These discoveries, with those of Réaumur and Spallanzani, formed the foundation upon which ultimate gastric pathology was to rest, and upon which a structure has been erected to which modern medicine points with just pride.

\* Read before the Medical Society of the State of New York at its eighty-seventh annual meeting.



"The way to pathology is through physiology," says Ewald (1) in his well-known work, and the more we deal with this subject the firmer is the truth of that statement impressed upon our minds. It is not the study of the peptonizing function alone which claims our attention, but it is the proper understanding of the entire work which is performed in this human laboratory, including a large part of the alimentary canal, and a thorough appreciation of the relations which each function bears to the others, that makes a rational anatomical diagnosis and indications for treatment possible and in many cases positive.

While we may not be able from this discussion to draw positive conclusions, it will be the endeavor of all who take part in it to treat the subject without prejudice, for the better understanding of the profession generally, which has not yet given it sufficient thought or the study which is needed to estimate the relative values of these newer methods of examination to the diagnostician of internal diseases.

*History.*—Though it is a fact established beyond controversy that the stomach tube had been used for various purposes before 1869, it was Kussmaul (2) who during that year became the pioneer in the *treatment* of stomach diseases by the use of the stomach pump and tube. He took advantage of the instrument which had for some time been used in America for emptying the thoracic cavity in cases of empyema (Kussmaul (2), Martius (3)).

Liebermeister (4), in commenting on this subject, prophesied that the manœuvre of Kussmaul would probably mark an epoch in the treatment of chronic diseases of the stomach.

In 1871 Leube first recommended the stomach tube for purposes of *diagnosis*, since which time a band of earnest workers in Europe, headed by Leube, Kussmaul, and Riegel, with recruits such as Ewald, van den Velden, v. Noorden, Sticker, Honigman, Boas, Leo, and others in Germany, Hayem and Winter in France, and in our own country such men as Kinnicut, Einhorn, and Stockton have done much to clear the way for a thorough discussion of the questions with which we are to-day dealing.

A genuine impulse was given when, in 1874, Ewald substituted the soft, flexible tube for the stiffer, less elastic one which until that time had been used.

*Physiological Data.*—For the better understanding of this discussion you will bear with me if I hurriedly rehearse a few physiological data which must serve to make clear the digestive activity of the stomach.

I. The fact may be accepted as proved by Miller (5) that the saliva is brought in contact with micro-organisms in the food, and others which find a habitat in the mouth. It is supposed that there are two groups of these organisms, which, both in the mouth and in the stomach, give rise to actual fermentation. The one group, in the presence of the saliva, decomposes carbohydrates with the formation of an acid; the other causes a disorganization of albuminoids with alkaline products. The first class is said to give rise to the production of lactic and fat acids, which in turn, according to Bokai (6), even in small quantities, particularly the former, have a salutary effect in stimulating intestinal peristal-

sis. Whether the presence of lactic acid in the secretions after leaving the buccal cavity is ever normal we will consider later in this chapter. I mention the matter here to remind you that modern physiologists and pathologists are attributing more than a simple amylolytic action to the saliva.

II. *The amylolytic action continues, as a rule, for some time after the changed starch is introduced into the stomach, particularly if accompanied by albuminoids.* The further conversion should cease in the normal stomach with the increase of hydrochloric acid secretion, and after the formation of syntonin or acid-albumin (Wesner (7), Wille (8), Boas (9)).

III. *The introduction of saliva into the stomach has a direct stimulating effect on the gastric mucous membrane* (Sticker (10)).

IV. It may be stated almost with certainty that, as a rule, *the normal stomach is empty during the fasting period, its membrane is pale, covered with a layer of mucus, either neutral or alkaline. It contains no gastric juice.* If hydrochloric acid is present, it is a remnant of a former digestive process, or the passage or presence of the tube has caused it (Wille (11), Ewald (12), Foster (13), Kinnicut (14)).

V. *Variation in the functional activity of the stomach must be expected according to the character of the food ingested.* (This is one of the fundamental rules of modern gastric physiology, and must always be considered when engaged in the diagnosis of stomach diseases.)

VI. *Direct irritation of the mucous membrane of the stomach is necessary for the secretion of the gastric juice.* Normally, it is the food which causes activity immediately upon its entrance into the stomach.

VII. *Lactic acid is never present in the stomach after the first period of digestion; upon this conclusion all writers seem to agree.* There is said to be an intermediate stage during which it is held that lactic acid is present with hydrochloric acid (Ewald (15)).

This lactic acid is not to be considered as a result of glandular secretion, but it is due to a process of fermentation already described, accompanying the digestion of carbohydrates or the ingestion of meat (Pasteur (16), Huppe (17)). Lactic acid is not present when pure egg albumin alone is taken.

With the establishment of an abundant hydrochloric-acid secretion, and ultimate free hydrochloric acid in the stomach, lactic acid disappears (Miller (18), F. Cohn (19)). As the result of experiment with a pure meat diet I have been able to verify the truth of Boas's statement that lactic acid is occasionally present shortly after the beginning of digestion in very small proportion. In contradistinction to what is taught in all the newer text-books, Martius (20), in a recently published work dealing alone with the gastric juice, holds that in "the normal process of digestion other acids than HCl are not to be taken into consideration"—in other words, are not present; that lactic-acid fermentation to any discoverable extent is always pathological. He opposes the division of the digestive process into three periods, as made by Ewald and Boas (21):

1. Period in which lactic acid is found.

2. Period in which lactic acid and HCl are found.

3. Period in which HCl alone is present.

The safest conclusion for us to accept with our present knowledge is that lactic acid is not normally present in the stomach during the digestive period, unless the ingested food contains carbohydrates in a process of fermentation—i. e., the fermentation lactic acid or the sarcolactic acid as introduced by meat.

VIII. It may be taken for granted that *the most important constituent of the gastric juice which the physician is called upon to take into consideration in conjunction with the chemical analyses of the stomach contents for purposes of diagnosis is hydrochloric acid.* While the chemical analysis is usually confined to the detection of the presence or absence of free HCl, it must not be forgotten that the free acid found in the later stages of digestion is but a remnant left after the thorough combination of HCl with the albuminoid elements of the food and other bases (Martius (23)).

IX. *HCl is secreted free, molecule for molecule, by the glandular structures of the stomach.* It is quickly brought in contact with the food and other secretions in the stomach, when the period of its utility begins without delay (Bidder and Schmidt (23), Martius (24)).

This statement is made in contradiction of the opinion of the French school, as represented by Hayem and Winter, which holds that absolutely no HCl is secreted as such, but that it results from a combination ultimately formed by a chemical change of the chlorides, more particularly the chloride of sodium, during the process of digestion.

X. *HCl with the pepsin secreted by the peptic glands forms the agent which is instrumental in the ultimate peptonization of the albuminoids, and this is the most important function of the gastric juice.*

XI. It may be taken for granted that *the average time when free HCl can be detected in the stomach contents after the ingestion of food is about one hour.* With large meals and coarse food it may be considerably later, depending largely upon the quantity and quality of the food ingested (Riegel (25)). The largest amount of free HCl is present two hours after the ingestion of the ordinary trial meal, when it comprises, as it does at the height of the digestive process, the largest part of the acid constituent of the gastric juice (Lowenthal (26)).

This fact has been emphasized by me for some time past, and we now find that Lowenthal's (27) experience verifies the truth of the statement made above. He found that with the trial meal of Riegel, with the total acidity of 58.5, there was present 35.5 free HCl one hundred and twenty minutes after the taking of the meal.

(This physiological fact leads me, in practice, to express the stomach contents somewhat earlier than has ordinarily been recommended, and taken in conjunction with the fact that the amount of free HCl, as well as the total acidity, are subject to variations, it would lead to repeated examinations at corresponding periods of digestion, on different days, to determine the working condition of the stomach.)

XII. *The peptogenic function of the stomach may be divided into three stages, in each of which the changed albumi-*

*noid can be studied, and gives characteristic reaction.* The first combination resulting gives rise to an acid albumin or syntonin, simply a more thorough combination of albumin with the acid. The second is the stage in which propeptone is found; this leads to a third stage, when normally the process of peptonization is ended and peptone has become the final product of albumin digestion, ready to be absorbed or pushed onward to meet its fate in the duodenum.

XIII. *The percentage of free HCl present in normal gastric juice averages between 0.15 and 0.22 per cent.* Any considerable deviation from these figures may be considered abnormal.

XIV. *Rennet is present in the gastric juices and, like pepsin, is a constant constituent* (Raudnitz (28), Boas (29), Johnson (30), Klemperer (31), Rosenthal (32)).

XV. *The presence of bile in the stomach interferes with the free performance of gastric digestion.*

XVI. *The normal digestion of starch precludes the possibility of the presence of achroodextrin, maltose, or dextrose, after one hour of stomach activity* (Ewald (33)).

XVII. *Normally, evidences of absorption from the mucous membrane of the stomach should be found on chemical analysis to have taken place in from fifteen to twenty minutes after the ingestion of food or drugs* (Penzoldt and Faber (34), Ewald (35), Wesener (36)).

XVIII. *Normally, the stomach is empty, the changed food having passed the pylorus between six and seven hours after the beginning of its digestion* (Leube (37), Riegel (38), Wesener (39)). The motor function normally ought to force a bolus, which is not digested in the stomach, into the small intestine before the end of seventy-five minutes after taking it, as has been demonstrated by Ewald (40), also Klemperer (41).

The following chart shows the changes which are demonstrated by the newer methods of examination in the secretory, motor, and absorptive functions of the stomach, with a tabulation of the diseases with which such changes are often associated.

1. *The qualitative changes* are usually dependent upon a process of abnormal fermentation. These are accompaniments of the various forms of indigestion which have also well-marked quantitative changes in the gastric juice, more particularly associated with a deficiency of the acid of the secretion.

2. *Quantitative changes.*

a, 1 and 2. The deficient secretion of the gastric juice is, as a rule, attended with a greater lack of free HCl than of the pepsin element. With this lack of sufficient free HCl it may be taken for granted that the period of digestion is materially prolonged, that fermentation is likely to take place, and that the albuminoids are tardily and faultily digested. In the fluid taken from a stomach in which there is deficient HCl after a trial meal we find the meat undigested, its fibers slightly swollen, but little changed. Lactic acid and other organic acids are present after we have reason to expect an active digestive period.

There may be either reduced HCl, or the quantitative change may show anacidity.

b. *Hyperacidity with normal quantity of gastric juice.*

1. Secretory changes.	1. Qualitative	1. With abnormal fermentation—usually associated with quantitative changes.
	2. Quantitative.	2.
	3. Absorptive changes.	3.
2. Motor changes.	1. Qualitative	1. With abnormal fermentation—usually associated with quantitative changes.
	2. Quantitative.	2.
	3. Absorptive changes.	3.
3. Absorptive changes.	1. Qualitative	1. With abnormal fermentation—usually associated with quantitative changes.
	2. Quantitative.	2.
	3. Absorptive changes.	3.

This change we often find in both acute and chronic diseases of the stomach. With Reigel, we consider these cases as including only those in which the hyperacidity can be demonstrated during the digestive period. Any excess of HCl above 0.3 per cent. may be considered as belonging to this class. In contradistinction to the anacid or deficient HCl gastric secretion, we find with hyperacidity the albuminoids well and rapidly digested in the majority of cases. In some cases, and these have been carefully described by Sticker, we find the meat digestion tardy, owing to the disproportion between the pepsin and HCl.

#### c. Hyperacidity and supersecretion.

We classify under this division such cases as are supplied with a gastric juice of good digestive quality, but in which there is an overactivity of the secretory glands, giving rise to an almost continuous acid secretion independent of the digestive period.

It is possible, therefore, to express from the stomachs of these patients, long after digestion has ceased, a fluid which is free from all remnants of ingested foods, but on examination is found to be sufficient to digest albuminoids. This condition can only be diagnosed after emptying the

stomach thoroughly, and allowing a period to lapse without the ingestion of food, when the tube is introduced and a fluid extracted with the characteristics already mentioned. As a rule, the motor function of the stomach in these cases is faulty; there remain in the stomach undigested starch and undivided bread particles; but, as a rule, the meat has been thoroughly and completely digested, and fermentation is not likely to occur.

#### d. Supersecretion.

It is a question whether there is a simple supersecretion which is unattended by hyperacidity. Riegel's experience emphasizes the statement that hyperacidity can occur alone, while supersecretion, in its most pronounced forms, is, as a rule, which is almost without exception, accompanied with hyperacidity.

2. a and b. Motor disturbances may be considered to be due to secondary changes. There may be overactivity or motor weakness. The more severe cases of the latter are found with some impediment to the free emptying of the stomach at the pylorus, when there may be simple diminution of the motor function, or it may be almost completely abolished. Believing, as I do, that a disturbance of



the motor function is rarely found without some fault in the gastric chemical function, I am anxious to impress upon you the importance of gaining positive evidence of the motor strength, and giving to each abnormality of motion its proper significance. The clinical evidences which this paper is to furnish will, I think, in conjunction with what Professor Stockton shall offer in detail, on this subject, prove the value of a thorough understanding of the motor function of the stomach. In very many doubtful cases, indeed, I hold that, when coupled with absorptive disturbances, it furnishes data of equal if not greater import than are supplied by a study of the secretory function alone; for if the latter be at fault, we may still hope, with a sufficient motor function, to advance the food into the duodenum, for its ultimate digestion and absorption there.

### 3. *a and b. Absorptive changes.*

Tardy or complete failure of the stomach to absorb must be taken into account for the better understanding of the condition of the mucous membrane of that organ.

If the accompanying chart is carefully studied it will be found that here, as in most diseases which require thorough physical examination for their accurate diagnosis, there is no *one* change in either secretion, motion, or absorption which is pathognomonic or which justifies a positive diagnosis.

The practical value of the newer methods of examination of the stomach and its contents lies in the knowledge which we gain of the changes in the functional activity of that organ, as epitomized above, and the addition of such information to our other subjective and objective symptoms. Our fondest hope can not make the results more than confirmatory, while the study of these methods emphasizes the importance of adding every detail which all cases present.

*Absence of Free HCl.*—Within the past few years the diagnostic value which had been accorded to the absence of free HCl from the stomach during the height of digestion has been materially modified, and we are daily leaning more toward the conclusion that it points more directly to a disturbed function and less to any one diseased condition of the stomach.

The diagnostic value of the absence or diminution of free HCl in the stomach secretion, associated more particularly with pyloric cancer and ultimate dilatation, was first systematically investigated by R. von den Velden at the clinic of Kussmaul in Strassburg.

It seems strange that the knowledge of this fact, which was given to the profession as long ago as 1842 by Golding Bird (53), did not lead to its application for diagnostic purposes. Bird's patient was a man, aged forty-two, with pyloric cancer and dilatation. The diagnosis was verified by autopsy. Bird made three chemical analyses in about three weeks, and concluded that "during the more irritative stage of the disease free HCl is present in the vomit in considerable quantities; but it gradually diminishes in proportion to the patient's loss of strength, and the organic acids increase proportionally as the free HCl diminishes."

It has been held that the absence or diminution of HCl from the gastric secretion is an almost constant attendant of all forms of cancers, regardless of their location or histo-

logical structure. That this is not true I am able to state positively as the result of experimentation during the past two years in eight cases of cancer—three uterine, two omental, with ultimate secondary nodules in the liver, two recurring cancers of the breast, and one medullary cancer probably of the right kidney after removal of the right testicle for the same disease about one year previous. In all of these eight cases Leube-Riegel test meals were given and repeated chemical examinations were made with positive results. HCl was present, both combined and free, in over ninety per cent. of the tests. In the case of cancer of the right kidney HCl was absent at times, owing to the regurgitation into the stomach of the bile, due to extra-intestinal pressure and constriction.

In conjunction with the study of the importance of free HCl as a diagnostic sign, we must remember that in not a few cases a feeble digestive process has progressed without the characteristic color reaction at the height of digestion. It must not be taken for granted that digestion begins at the moment when the secretion is expected to react to these tests; but let the clinician note that at that time a large part of the stomach work has been done and digestion is almost ended (Martius (54)). "Free HCl" might then more properly be spoken of as "surplus HCl." It is, in fact, the remnant left after all affinities have been satisfied.

*Cancer of the Stomach.*—The pathological condition with which absence or diminution of HCl has been most frequently associated by clinicians is cancer of the stomach. With your permission I will spend a few minutes in considering the diagnosis of this condition, with special reference to the newer methods of examination of the stomach contents.

The positive statement is made by Riegel (55) (after emphasizing the fact that our examinations must be oft-repeated and made with accuracy and reliable reagents before formulating conclusions) "that the constant presence in a gastric juice of free HCl and a normal peptic strength allows the exclusion of cancer of the stomach with certainty, regardless of the other symptoms, however strongly they point to that disorder."

If we accept the statement of Riegel, we are forced to determine the factor which causes the changed secretion and functional inactivity. That there is nothing in the cancer *per se* to check the HCl secretion is shown by innumerable cases of cancerous diseases of other organs, as already mentioned, in which free HCl is almost always present in the gastric juice. It has been the experience of others that in a few cases of cancer of the stomach free HCl continues in the gastric secretion, and within the past three years the writer has had a similar experience in two cases in which free HCl could always be demonstrated at the height of digestion. In all of these cases there has been a functionally active gastric juice. In both of my cases the autopsies revealed the presence of cancer of the stomach, but without the usual accompaniment of far-reaching atrophy or degeneration of the gastric follicles. The writer has notes of an autopsy made during the winter of 1890 in a case of pneumonia ending in three days where the patient was also in the early stages of cancer of the stomach. In this case there was always presence of free HCl. The post-mortem

showed a small scirrhous nodule at the pylorus; the mucous membrane of the stomach was but little changed; the microscope gave evidences of unchanged peptic glands.

Without dilating too long on the causes of anacidity in cancer of the stomach, it may be assumed with great certainty that the prime factor in its causation is the infiltrating character of carcinoma, involving the glandular elements of the stomach in a process of atrophy with more or less additional gastritis.

Jaworski and Gluczinski (56) held that in cancer of the stomach there was no free HCl, little pepsin, and no peptones. Their study of the subject seemed to them sufficient to justify the conclusion that with free HCl and normal digestive faculty carcinoma should be excluded. To this view Ewald (57) also subscribes. How contradictory are the statements of Cahn and v. Mering (58), who conclude that "with cancer of the pylorus the presence of HCl is the rule, its absence the exception"!

The largest number of examinations have been made by Riegel (59), who reports two hundred and seventy-four analyses in thirteen cases. Free HCl was never detected. He (Riegel (60)) reported three cases of cancer of the stomach in which a feeble HCl reaction took place early in the disease.

Rosenheim (61) reports sixteen cases, in fourteen of which there was an absence of free HCl; in the other two there was a transitory presence of free HCl and hyperacidity, respectively.

Kinnicut (62) reports eight cases with one hundred and thirty-two analyses. Free HCl was demonstrable only in two cases, in one of which a trace was detected in two examinations out of twelve; in the second a feeble HCl reaction was once obtained.

In ten cases under my own observation with one hundred and twenty tests, free HCl was absent in 92.7 per cent. of the tests, and present, as a rule feebly, in 7.3 per cent.

Thiersch (63), in an interesting article On the Presence of Free HCl in the Gastric Juice in Beginning Cancer of the Stomach, reports a case in which HCl was present, and Krause (64) has established beyond doubt the fact that HCl may persist in cases of ulcerating carcinomata of the pylorus. A continuous absence of HCl is found in all cases in which there is atrophy or amyloid degeneration of the mucous membrane of the stomach accompanying cancer (Levy (65), Edinger (66)).

In considering the diagnosis of gastric cancer from the chemical analysis of the stomach contents, it must be remembered that in most forms of gastritis (Boas (67), Jaworski (68)) HCl is reduced (from 0.22 per cent., 0.28 per cent., to 0.1217 per cent.).

Boas has found that in marasmus, Riegel (69) in fever, Honigman in regurgitated bile (a fact to which I have already referred in my own statistics) free HCl is absent, and Grundzach (70) has shown that in perfectly healthy individuals with normal digestion there may be a transitory deficiency of free HCl.

With such data before us no one will assert that we are justified in diagnosing cancer of the stomach from the

absence or presence of free HCl alone, while in the majority of cases of cancer of the stomach, as shown by the results of the tests made by Riegel, Rosenheim, Kinnicut, and myself, absence of HCl has been demonstrated; "the diagnostic value of this circumstance is materially lessened by the occurrence of this same deficiency in other diseases with similar symptoms." Ewald (71) concludes: "But granting this, the proposition which I was the first to announce is still true, that the demonstration of the presence of HCl points with very great probability against the existence of cancer of the stomach, for the cases of this disease in which there is a positive reaction to the carefully applied tests are so rare that they have very little bearing on the question."

1. *Latency of Gastric Cancer.*—The frequent examination of the stomach contents has demonstrated, to my mind, at least, the fact that in a large number of cases there are periods of latency during which there remains a certain amount of functional inactivity, but in properly managed cases immunity from many of the painful and depressing symptoms of the original disease.

Latent gastric cancer has not been generally recognized, and in many cases the first and correct diagnosis has been changed by the unsuspecting physician, owing to this period of latency with evident improvement and deviation from the ordinary course of the disease. I have in mind at this time a number of cases, and in most of them, if seen sufficiently early, there is decreasing HCl in the secretion, a tardy absorption, with more or less motor involvement, according to the location of the tumor and the amount of secondary dilatation with the period of latency. The examination of the stomach contents shows no improvement, neither does the amount of HCl vary materially from that found at the beginning of the period of latency.

In many of these cases the olive-oil and salol tests prove increasing motor strength, and in those patients who have accompanying glandular atrophy and yet show general improvement it may be assumed that constriction does not exist to any great degree, and that the duodenum and intestines are performing their functions with sufficient activity to nourish the patient. It follows, therefore, that the cases in which we most frequently find latent gastric cancer are either those with localized tumor without much constriction and ultimate gastrectasia, or the infiltrating variety, with only moderate thickening at the pylorus.

It is surprising to note the length of time during which the disease remains latent and the long duration of the disease as a result of these periods of latency.

I have at the present time a case under observation which has continued for almost six years—that of a woman, now sixty years old, which, seven years ago, commenced with vague symptoms of indigestion and anorexia. For two years there was an increase of these symptoms, with the characteristic changes in the blood found in cancerous diseases, as shown by microscopic examination. Four years ago she had coffee-ground vomit, and later considerable hæmatemesis. Three years ago there was almost complete absence of HCl, with tardy absorption and weakened motor strength. With these symptoms no tumor could be felt,

neither was there gastrectasia. At that time she commenced to improve; trial meals showed absence of HCl, but the motor function had improved so that gradually the stomach learned to empty itself, to allow of the more thorough digestion in the small intestine. The subsequent history shows periods of exacerbation and latency until now, when we find a well-marked tumor in the anterior stomach wall, as shown by distending that organ, and secondary nodules in the groin, and probably in the liver.

Some may say that this was originally a case of ulcer which now has a carcinomatous base. This is not probable, for there has been no time when there was hyperacidity or supersecretion, always deficient HCl; at no time was the secretion of the stomach competent to digest albuminoid foods, while the seat of the tumor, with the early cachexia and blood changes, preclude the presence of an original ulcer ventriculi. In these cases of latent cancer without tumor formation the disease strongly resembles pernicious anemia; but here the microscope comes to our aid and the experienced hematologist will have no trouble in distinguishing.

Henry (72), in a clinical lecture on diagnosis of cancer of the stomach, says: "I had under my care at the same time two cases—one with pernicious anemia, the other with cancer of the stomach. The latter was far more emaciated, far more feeble than the former, while the red blood-corpuscles were four or five times as numerous. Surely nothing in the whole field of clinical medicine can be more diagnostic than such facts. In carcinoma of the stomach the reduction of the number of red blood-corpuscles does not keep pace with the cachexia; in pernicious anemia the cachexia does not keep pace with the reduction of the red blood-corpuscles."

2. *Infiltrating cancer of the stomach* without distinct tumor formation is not of infrequent occurrence. Unless the infiltration or new tissue formation in the neighborhood of the pylorus is sufficient to cause constriction with more or less dilatation, the diagnosis between this condition and atrophy of the gastric follicles becomes very difficult.

Here again our tests will come to our assistance if made, for physical signs will not avail until secondary changes have taken place. In both, HCl, pepsin, and rennet may be absent. In atrophy there is never hæmatemesis, while the presence of altered blood and pigment gives the stomach contents a characteristic color in carcinoma (Ewald (73)).

With infiltrating cancer we find—

a. During fasting, the presence of the food taken the day before in the stomach.

b. With trial meal, absence of free HCl.

c. Lactic acid present.

d. Progression of disease, never an improvement of functional activity of the stomach.

3. *Pyloric Carcinoma, Stenosis, and Gastrectasia*.—In these cases the symptoms gradually appear. If the patient presents early, there is complaint of occasional vomiting, with more or less sternal and epigastric distress. As the disease advances, even before the tumor is palpable, per-

cussion elicits a changed note over or near the normal location of the pylorus.

The examination of the stomach contents after a test meal shows acidity due to the organic acids, lactic mainly. The food taken during the previous day is found in the stomach. As a rule, free HCl is absent; if not entirely absent, is reduced in quantity. As the disease advances there may still be presence of pepsin in a reduced quantity, while rennet may or may not be present, also peptone and propeptone.

It may be taken for granted that if, on repeated examination with the tube and with a proper diet, composed in part of albuminous food, the stomach retains the ingesta, but slightly changed and undigested for more than seven hours, a constriction is present at the pylorus; and if free HCl is absent, with the absorptive function of the stomach deranged, the chances are decidedly in favor of carcinoma. Dilatation is usually present under such circumstances; if not, it will not be long in showing itself. The amount of fluid expressed through the tube gives an approximate idea of the degree of the constriction and the amount of gastrectasia.

4. *Carcinomatous Infiltration of the Base of Old Ulcers* (particularly at the Pylorus).—From seven to nine per cent. of all gastric cancers are located in and take their origin from ulcers (Haberlin (74), Rosenheim (75)).

In a private communication from Professor Billroth, to which I will again refer, he writes: "I consider the differential diagnosis of an ulcer of the stomach with cicatrization and beginning carcinomatous infiltration from primary cancer as very difficult and usually impossible—ofttimes impossible when the fresh specimen is before us and cut into, only possible after many and large sections have been microscopically examined." It may be said at this juncture that given a case (Rosenheim (76)) in which there is tumor formation, pain, anorexia, and rapid emaciation, with the characteristic blood changes of cancer, free HCl constantly present at the height of digestion, with possibly hyperacidity and ultimate gastrectasia, we may conclude with a considerable degree of certainty that we are dealing with a cancerous infiltration of the base of an old gastric ulcer. Here, too, we must be careful to exclude extragastric growths, which cause compression of the pylorus and dilatation in consequence, and may at the same time have accompanying hyperacidity. Such cases have been reported by Plawski (77), who dilates very fully on this subject in his article.

5. *Localized cancers without constriction and with but little glandular atrophy* occasionally occur, and HCl may continue to be present in the secretion until within a short time before death.

Here the diagnosis requires a thorough physical examination. The stomach must be outlined after the method of Piörri and allowance must be made for absorptive and motor functions according to the location of the neoplasm and the extent of the change in the mucous membrane as the disease progresses.

6. *Non-malignant and Fibrous Stenoses of the Pylorus*.—In this connection it must not be forgotten that there are



cases of non-malignant and fibrous stenoses of the pylorus. In many of these cases we have a previous history of ulcer, with attending hyperacidity, characteristic pain, and hæmorrhage. In other cases the stenosis is gradually formed, the ætiology remains obscure, and a differentiation from cancerous obstruction becomes necessary.

In fibrous stricture we find HCl present, in some cases in excess, peptic action slow, but ultimately satisfactory. In thirty-three cases studied by Riegel (78), he found 0.10 to 0.46 per cent. of HCl, and in twenty cases titrated by Ewald (79) he found 0.17 to 0.30 per cent. of the acid.

As a rule, after the Ewald test meal, I have found hyperacidity, similar to the experience of Einhorn, as related to me in a personal communication of great value. Free HCl is present, food is held in the stomach longer than normal, while albuminoids are changed and partially digested, while the organic acids, particularly lactic acid and butyric acid, are present and in the ascendancy, displacing in some cases the free HCl, which is again found after thorough disinfection and washing out of the stomach.

In most of the modern works on carcinomatous diseases of the stomach it appears to the writer that too little importance has been placed on a more careful study of the motor and absorptive function of the stomach, while the HCl estimation has been constantly placed in the foreground.

The newer methods of diagnosis must include in the diagnosis of gastric cancer the frequent examination of the blood for hæmoglobin as dwelt upon by Haberlin (80) in his monograph, and the examination of the urine for indican (Rosenheim (81)), in order to give valuable information.

In association with the subject of cancer of the stomach, with your kind permission I will report two cases which show the value of examination of the stomach contents as an aid in differential diagnosis:

CASE I.—On the 27th of May, 1891, I was called to see Ellen R., aged forty-two, unmarried, with a negative family history. For several months she had been complaining of a feeling of distress after taking food, pains radiating through the upper half of the abdomen, progressive but gradual emaciation, with increasing muscular enfeeblement and considerable anæmia. The pains bore no relation to the ingestion of food, though she complained of flatulence about two hours after her meals. She had vomited at various times during the preceding two months, never blood, usually a light-yellow, sour-tasting, but not foul-smelling fluid.

At times the vomited matter had been of a darker, almost brown color. There were no other subjective symptoms save a chronic constipation. Ovarian and uterine functions were normal, though she gave a vague history of a pelvic peritonitis, for which she had been treated about two years before the beginning of the symptoms of which she now complained. There was also a slight accentuation of the mitral sounds over that area. With these symptoms, the character of the pain, the vomiting, more particularly the occasional ejection of a brownish, almost coffee-colored fluid, malignant disease of the stomach or duodenum was strongly suspected.

Physical examination of the abdomen at the first visit failed to give satisfactory evidence of the existence of such a lesion. On pressure over the epigastrium there was increased tender-

ness, while percussion was normal all over the abdomen. The size of the stomach was tested after the method of Piorry and Penzoldt, and was found to be normal. After this she refused the trial meal, preferring treatment for a number of days before the reintroduction of the tube. An examination of the urine at this time showed it to be normal, with a specific gravity of 1.024. During the week following, the patient's condition did not change materially. On the 5th of June, about nine days after my first visit, the patient was given a Leube-Riegel test meal, which was expressed after five hours by means of a soft tube, when it was found that most of the albuminoid food had been digested. The extracted remnant contained neither starch nor any of its products, gave positive evidence of the presence of HCl with Congo paper and the Gunzburg test, as well as that of Boas. The amount of HCl was 0.25 per cent. The Effemann test failed to show the presence of organic acids. The test for pepsin and rennet showed a good digestive fluid.

The result of this examination, after the strong suspicion of gastric cancer, was surprising and puzzling. The test of the motor function with salol, and the absorptive function also, showed normal motor and absorptive activity. Gastric cancer was at once excluded, though I now leaned very strongly, strengthened by the increasing emaciation and anæmia of the patient, to the diagnosis of malignant disease of some one of the abdominal viscera other than the stomach. No positive diagnosis was made.

The subsequent course of the case proved the correctness of that view. During the following month a distinct nodule could be felt in the epigastric region, near the normal position of the pylorus. To localize this nodule more exactly the stomach was inflated, when it was found that the nodule was situated behind its posterior wall. The diagnosis of retroperitoneal or pancreatic cancer seemed justified. In the course of the next few weeks it became evident that there were cancer nodules in the omentum and in the retroperitoneal folds and the pancreas.

The addition of glycosuria to her other symptoms several weeks before her death led me to conclude that the nodule felt in her epigastrium was connected with the pancreas, though there was no fat in her stools at any time.

On the 31st of July, 1891, she was suddenly taken with a profuse diarrhoea, and died in collapse during the following night.

The post-mortem examination, made by Dr. Curtin, showed cancer nodules involving the retroperitoneal glands and omentum, with a large cancerous mass occupying the normal seat of the head of the pancreas. This organ was adherent to the stomach, and the latter organ was found entirely free from disease.

In this case it may be said that the chemical analysis was of great value in distinguishing and in a measure locating the seat of the disease. Without the examination, but with the presence of a tumor ultimately in the epigastric region, palpable, with the symptoms already given during the period preceding the glycosuria, no physician would have leaned as strongly to any other diagnosis as to that of gastric cancer.

The absence of fat from the stools, in spite of the persistence of glycosuria, would have had no material bearing in the diagnosing of the case without the positive evidences of a normally acting stomach, such as we obtained from our chemical analysis.

This case is one of many which might be related to convince the most skeptical of the truth of the statement

that we possess in the newer methods of examination aids of practical value for the differential diagnosis of diseases which have a great similarity to the organic stomach disturbances. The cases which have given me the greatest satisfaction have been those in which I have been able by these methods to exclude almost positively the existence of organic disease of the alimentary tract when there were present well-marked evidences of some serious organic disease. In such cases, in spite of the fact that there are symptoms referable to the stomach, it may be said, indeed we may be almost justified in formulating the rule, that without marked change in the contour of the stomach, without a tumor which can with certainty be located in the stomach wall, without unequivocal signs of organic disease of the stomach, with, on chemical analysis, the evidences of normal secretory, motor, and absorptive functions, organic disease of the stomach can be excluded with certainty. The cases in which nodules in the epigastrium or its immediate neighborhood connected with the liver, gall bladder, pancreas, or omentum require accurate differentiation are constantly coming to us, and require all of the skill and acumen of the careful and painstaking diagnostician. In a recent personal communication from Boas I was pleased to note that he expressed his belief in the fact that one of the most important achievements of the chemical analyses of the stomach contents was the certainty with which they permit of the exclusion of the diseases of the stomach.

CASE II.—In a case which recently came to my notice there was a small nodule in the lower right corner of the epigastrium, which followed in about ten months after the removal of the right testicle for medullary cancer in a man aged thirty-seven. There were some symptoms which made the exact localization of the tumor impossible. There was repeated vomiting at first of an acid mucus. As the nodule increased in size it was found that the stomach symptoms grew worse. An examination of the stomach contents after a trial meal failed to show any change in the functional activity of that organ; as a result, gastric cancer was excluded.

In the course of a few weeks, as the tumor enlarged, it was found that at times so much bile was present in the stomach, regardless of the digestive period, that a constriction of the intestine below the entrance of the common duct was strongly suspected, thus causing a regurgitation of the bile into the stomach. When the stomach was thoroughly emptied and all bile removed, the reactions were normal after a test meal at the height of digestion. The subsequent history, I think, justified the diagnosis of a growth connected with the right kidney, by pressure almost occluding the duodenum at a point below the entrance of the ductus choledochus. Unfortunately, no post-mortem was allowed.

(To be concluded.)

Changes of Address.—Dr. Louis A. Bull, to No. 619 Main Street (32 and 34 Market Arcade), Buffalo, N. Y.; Dr. George H. Cocks, to No. 1986 Madison Avenue; Dr. John G. Curtis, to No. 327 West Fifty-eighth Street; Dr. Z. Taylor Emery, to No. 481 Washington Avenue, Brooklyn; Dr. Francis Foerster, to No. 339 West Fifty-second Street; Dr. L. Le Brun, to No. 78 South Ferry Street, Albany, N. Y.; Dr. Maurice J. Levi, from Albany to No. 78 West Eighty-second Street, New York; Dr. Emmett D. Page, to No. 297 De Kalb Avenue, Brooklyn; Dr. H. W. Rand, to No. 172 Clinton Street, Brooklyn; Dr. Cyrus S. Siegfried, to No. 149 Franklin Street, Buffalo, N. Y.; Dr. Irving Townsend, to No. 56 West Forty-sixth Street.

## NOTES ON CASES OF HOMEO-OSTEOPLASTY IN THE SHATTERING DISORGANIZATION OF COMPOUND FRACTURE OF THE LEG, THIGH, AND HAND.

By THOMAS H. MANLEY, M. D.

In serious cases of compound fracture of a limb attended with loss of bone substance we are often required to promptly decide on the adoption of such measures as will save life and afford us the best prospect of saving the limb. In the main, under these circumstances, there are but two procedures open to us—first, *immediate* amputation; and second, delay and the application of such a tentative therapy as will enable us to spare every particle of such tissues as may later serve a useful purpose.

After considerable experience with many very extensive mangling fractures of the extremities of every description, I am led to conclude that in the present advanced state of modern surgery a primary amputation in civil life is never a justifiable procedure unless the initial vulnerant force applied has been so great as to *totally* destroy the vitality of tissues beyond the line of injury—in other words, unless the physical force has in itself effected practically a traumatic amputation. In other recent contributions\* I have fully and in detail endeavored to clearly set forth my position in this particular; to define the class of cases in which the greatest success may be attained, with a varied technique and therapy, which, when instituted, is attended with good results; and demonstrated, both by an appeal to the most noted recent authorities and the citation of a large number of cases, that we must under *all* circumstances practice extreme conservatism in all cases of serious fractures accompanied by extensive disorganization of substance.

The cases here described were attended by me within the past six months.

The most interesting of the group I will present first.

CASE I. *Compound Fracture of Left Tibia; Removal of Three Inches and a Quarter of Shattered Shaft with a Corresponding Segment of the Unbroken Fibula.*—Patient, Mr. C. B., aged thirty-nine years, of medium height and good general health, on the 30th of June, 1892, while descending a staircase, slipped and fell to the bottom. As he was unable to rise after the accident without assistance, he was lifted up, placed in a conveyance, and sent to his home. Here he was attended by his family physician. Not having very good success in the management of the case, and finding that the patient's general condition was becoming seriously disturbed, the doctor sent him to the Harlem Hospital.

When the case was seen by me (July 4th) in hospital and I discovered the extremely serious nature of the injury, before instituting any special line of treatment other than securing the parts in a comfortable temporary adjustment, I sent for the family physician to again see the rather hopeless sort of case we had in our hands—as far, at least, as the saving of the limb

\* Resection as a Substitute for Primary Amputation (*New England Medical Monthly*, May, 1891); A Study of Osteogenesis from a Pathological Standpoint (*Medical and Surgical Reporter*, July, 1891); Osteogenesis and Osteoplasty in Crushing Lesions of the Extremities (*Buffalo Medical and Surgical Journal*, November, 1892).

went—before we should undertake any sort of serious operation on him.

The tibia had been broken about four inches from the ankle joint. Both the proximal and distal ends of the fragments were comminuted, and were projecting through a large breach in the integument along the inner aspect of the leg. More than three inches of the tibial shaft protruding was of a lusterless, charred appearance, completely denuded of its periosteum. The foot and leg were greatly swollen, and the appearance of the wound was most unpromising. Its surface was bloodless, of a gray hue, abundantly discharging an ichorous, foul smelling fluid on the least pressure.

His general condition was not good. Already symptoms of incipient wound infection and constitutional irritation were manifested by the quick pulse, flushed cheek, and high temperature. He had a good heart, however, with plenty of "nerve" and will power, and was ready to submit to anything that might be done which would preserve the leg.

Now the question arose, What was to be done that would secure the best prospect of future locomotion and save his life?

Well, if we were to institute that measure which would the most promptly rid him of the mass of irritable tissue and effect prompt union, the answer would be, Amputation and an artificial limb. But how few ever secure a stump that will bear an artificial limb with any degree of comfort; and, even though they do about once in ten cases after amputation through continuity of tissue in the leg, what a miserable substitute the most perfect prosthetic apparatus is compared even with an ankylosed ankle!

After careful deliberation and anticipating many of the dangers in the way of resection, it was decided to utilize modern osteoplastic procedures and endeavor to preserve the limb.

It must be remembered that the fibula was yet whole and unbroken. We might, it is true, have removed the *débris* of the broken tibia and left a gap in the tissues, but the limb would have been useless for either motion or pressure. So we might have plugged the breach with decalcified bone chips; but, though these might be covered in time by a temporary cicatrix, yet they are as much a foreign substance as the bone about to be removed.

Heteroplastic bone grafts were quite out of the question, for the bone elements of man will not mingle and assimilate with those of a lower animal.

It was decided then to cut away all the disorganized bone of the tibia and remove sufficient of the fibular shaft to permit the transverse surfaces to come evenly together; in that manner to secure solid union, though at the expense of the length of the leg.

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**Operation.**—On the afternoon of July 5th, after having had the patient prepared and the limb in readiness, I commenced by pushing out the lower fragment to its uttermost, in order that

the chain saw might engage at the broad, unbroken surface of the distal fragment, just above the epiphyseal line, when it was cut through, leaving a wide, vascular bone surface. The proximal fragment was treated in a similar manner. Now the fibular shaft was sought for, and it was intended to reduce its length by such an excision as would permit us to oppose the tibial surfaces. But, as seen in the cut, we had to remove a second piece before this end was secured.

After the sawn surfaces of the bone shafts were brought together, one heavy silver wire suture was introduced deeply into the free ends of the tibia, which secured them firmly together, after its ends were twisted.

The periosteal coverings of the divided tibia and fibula were now carefully sewn together around the hiatus, in the tibia and fibula, and then the tissues were, each layer homologically, apposed and sutured until the integuments were reached. Through all, down to the bone, an ample drain-vent was left. At this stage a plaster dressing was applied. Fearing the troublesome secondary, excessive oozing so common after permanent dressings are applied when Esmarch's constrictor is used, we did not employ it.

Our man was on the table, under ether, a little more than an hour. He reacted well, and, though his complete recovery and the return of the full use of his leg had been tedious, he has been rewarded for the time lost and expense entailed thereby by the preservation of his leg.

*Ultimate Results as to Locomotion and Strength of the Limb.*—The bones now are solidly united, and he is able to attend his place of business and stand unsupported on his limbs from morning until night.

In the beginning of November he had a shoe specially made for the injured leg. This was so constructed as to give firm support to the ankle; and, by extending the broad, strong, lateral welts up to the knee on firm lacing, some of the weight of the body was in this manner borne by the knee joint directly. As there were removed just three inches and a fifth of bone shafts in their vertical diameters, hence, in making the shoe, a cork-sole lift, corresponding to this loss, was built up from below.

He now has no pain or discomfort of any kind.

Under date of February 2, 1893, he writes to me that at the time he was injured he was crippled with rheumatism in the



FIG. 1.—Anterior internal aspect. 1. Segment corresponding in size and situation with that removed. 2. Scar of internal incision. 3. Horizontal patella line. 4. Line corresponding with heel-surface raised.



FIG. 2.—Showing asymmetry in length. 1. Line through the horizontal plane of the lower limbs, in the sitting posture. 2. Cork-sole shoe with a three-and-one-fifth-inch lift.

joints of both of his legs, and had been a victim to this malady for many years; but that since he was injured his rheumatism has entirely left him. Accordingly he inquires, "Do you think that the operation on my leg cured me of my rheumatism?" And he adds: "If any one doubts the present strength and use



of my leg let him come forward: and as I can now give him a good kicking with it, he will soon change his mind."

"The little bone," he says, "which you expected, came out yesterday, much to our relief; and let me assure you that we



FIG. 3. Standing position. 1. Horizontal line through center of patella. 2. Horizontal line under one ankle joint and over the other.

gave it a right royal welcome, as it no doubt is the last of his race."

It must be confessed that for the remarkable result and the preservation of Mr. B.'s leg we are largely indebted to our nurse, his excellent wife, through whose faithful care and unremitting attention very much of our success is attributable.

I may add in conclusion that this case was one which has demonstrated the enormous

advantage of homœo-osteoplasty in those serious, complicated, compound fractures in which heretofore the usual procedure has been immediate amputation. I can

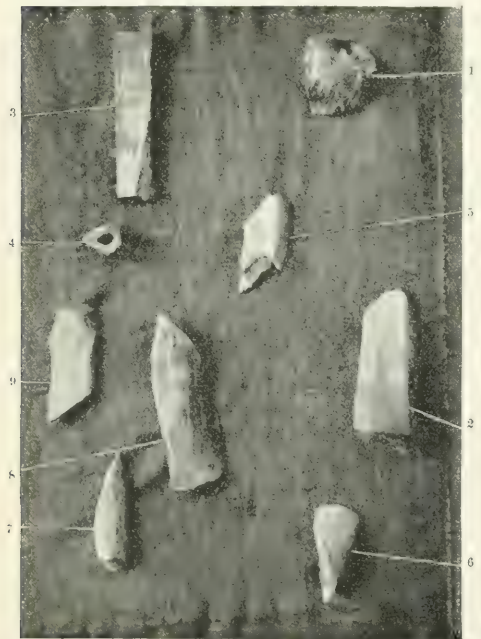


FIG. 4.—1. Proximal fragment of tibia sawn off. 2. Distal fragment of tibia sawn off close to ankle joint. 3. Section of fibula (sound) sawn through. 4. Section additional rendered necessary. 5, 6, 7, 8, 9. Shattered fragments removed from hiatus.

find no parallel case in the annals of American surgery. In Ollier's great work, among the many cases of osteoplasty

there cited are many similar ones; but they were all of a constitutional or pathological origin, and do not belong to the category of traumatism.

It may be added that in any other case of a similar description in a healthy child or adult, in whom there is a "cushion joint" (a pseudarthrosis) with loss of bone substance following a bone injury of the leg, it may be as safely dealt with, with as good prospects of satisfactory results, a month, a year, or more after the primary injury as immediately after the accident, when osteoplasty is resorted to and skillfully employed.

CASE II. *Compound Comminuted Fracture of the Tibia with Simple Fracture of Fibula, besides a Cranial Fracture; Primary Resection of Bone with Adjustment; Acute Gangrene; Preparation for Amputation; Death under Ether.*—Patient, aged thirty-one, a heavy-built, swarthy, vigorous man, while on a "bender" during the Christmas holidays fell through a bulkhead, sustaining the injuries above stated. He was admitted to Harlem Hospital December 26th. There were evidences of fracture of the base of the skull, though he was rational. On examining the leg (right), it was found that he had a compound fracture of the tibia with extensive shattering, besides a simple fracture of the fibula which was not displaced. The parts were treated immediately on admission, as the preceding case.

He came out of the anæsthesia well and passed a good night. There was nothing of special note through the day succeeding, except an incoherency of speech and mixed symptoms of *delirium a potu* and cerebral injury.

On the evening after admission, on looking closely at the toes of the injured leg, which were cold, it was seen that they were of a deep purple and bloodless. In other words, gangrene had set in. Removing all the dressings, it was apparent that mortification had extended up as far as the knee, and that there remained no alternative but an amputation.

But his general condition was at this time very unfavorable to a capital operation. There was a high temperature and his pulse was very quick. Indeed, his case presented a most serious aspect. Nevertheless, if the cerebral lesion was not extensive, with the dead limb off there was a glimmer of hope of saving his life. Therefore, after carefully considering the case from all sides, it was finally decided to moderately etherize and do a quick circular amputation through the lower third of the femur.

With this object in view he was brought into the operating room. Scarcely an ounce of ether was given, however, when he suddenly ceased to breathe and was dead.

In reviewing this case in my mind, and its sudden termination, my only regrets have been that I deviated from my usual course and did the resection with the primary dressing while my patient was in shock. This was done because it was thought that while there were so many vessels to ligate and so much shattered bone to remove, it would add but little if any to the collapse to do the resection and make the adjustment. But this, I am convinced, was a serious mistake. Although a post-mortem was denied, as he had free hemorrhage from both ears with symmetrical ecchymosis, there is little doubt of a skull fracture.

CASE III. *Compound Comminuted Fracture of the Femur, Upper Third; Reposition of Fragments; Recovery.*—Patient, a young man nineteen years old, was injured by a fragment of board rebounding from a circular saw, hitting with great vio-

lence in the left groin. He was admitted July 22d to the Harlem Hospital.

He was in considerable shock when admitted. The left lower limb was in the position of typical femoral shaft fracture. At seat of injury, projecting through integument at inner border of rectus muscle, was a spiculum of the shattered bone projecting. As the fracture was within but about three inches of the upper epiphyseal line, the immense number of powerful muscles inserted into the trochanters had full play on the superior fragments. In this case the temptation to enlarge the opening and do an osteoplasty on the displaced fragments and spike them together was very great. But a former acquaintance with traumatic lesions of the femoral shaft had taught me the important lesson that the femur, of all the bones in the human body, is the one in the skeleton which will not bear manipulation with impunity after fracture.

Dr. James R. Wood used to say that "he took off his hat to the peritoneum"; and my experience has led me to have a very respectful regard for the fragments of a broken femur. I have seen one case in which on non-union the fracture was cut down upon by the surgeon, when the ends of the fragments were chiseled and wired. The patient narrowly escaped with his life, remained eighteen months in bed, and got up with an ankylosed knee joint and non-union of the fragments again. Another eminent surgeon whom I saw refracture a distortion of the femur after vicious union informed me that a sort of union followed after considerable time, but that the limb was no better than before operation. Hence in this case, with the exception of replacing the fragments and adjusting of the limb, nothing was done. The usual attitude was maintained, and the young fellow made an uneventful recovery, leaving the hospital October 3d with two inches of shortening in the injured limb.

CASE IV. *Compound Fracture of the Three External Metacarpal Bones of the Left Hand, with Complete Shattering of all the Phalanges of the Little Finger; Railroad Accident.*—Patient, aged twenty-one years, a brakeman, came under my care November 21st. While coupling cars at White Plains, N. Y., his left hand was crushed between the buffers. Immediately after the accident there was considerable hemorrhage, but by tight bandaging it was efficiently subdued, and he was at once sent to this city. When he came under my notice, six hours after the accident, he was suffering from severe shock, and the mangled hand, with the many fractured ends of bones projecting through its dorsal surface, at first sight seemed hopelessly destroyed.

The little finger was reduced to a mass of pulp. Its metacarpal bone was fractured in its center. The fourth metacarpal was torn completely out of its socket at the metacarpo-phalangeal articulation. The third metacarpal bone in its distal third was fractured and shattered into the articulation with the first phalanx of the middle finger. The entire palmar cutaneous surface of the hand was unbroken.

In this case, after a careful examination, I felt justified in promising to be able to save sufficient of the hand to serve as a useful member, provided there was not an extensive loss of integumental covering in the event of an extensive slough. It was evident on inspection that though there was considerable disorganization and displacement of bone, yet, with few exceptions, all the fragments maintained intimate attachments with the loose adjacent tissues. Hence it was assumed that with reposition their vascular feeders would preserve their vitality and aid

in the processes of repair. The crushed finger, traumatically amputated, was removed, with its stump left to heal by granulations. The fragments of the third metacarpal bone were resected, but great care was observed to preserve its periosteum. All the other fragments were replaced and the parts aseptically dressed and splinted. In this and none of the other cases were any antiseptic solutions employed.

Our patient, though not quite well yet, promises in the near future to have a fairly useful hand. There will remain some stiffness and impairment of strength, but it will be a hundredfold more useful than would be any sort of an artificial substitute.

## EXCISION OF THE CHANCRE AS A MEANS OF ABORTING SYPHILIS.\*

By JAMES C. McGUIRE, A. M., M. D.,  
WASHINGTON, D. C.

Excision of the chancre as a means of aborting syphilis was long ago abandoned by the majority of syphilographers, but of late it has been again revived. The latest discussion on the subject took place at the Society of Dermatology and Syphilography in Paris (*Journal of Cutaneous and Genito-urinary Diseases*, January, 1892). The most interesting case referred to was that of Dr. Mauriac. He excised a chancre on the third day. On the following day a new chancre, and one more indurated than the original, developed at some distance beneath the prepuce; this was also cut out. The wounds cicatrized rapidly, but beneath them specific induration again occurred. Syphilis followed in due course. "The general infection was thus neither prevented nor retarded by the operation."

The question of the advisability of removing the initial lesion depends on whether we regard it as a local lesion which is always followed by constitutional infection, or believe the system is already under the influence of the poison when the chancre first appears. Those who believe the system at large is only affected by the gradual absorption of the virus, after induration in the chancre has taken place, of course advocate early excision.

Judging from analogy, the poison does not lie quiescent in the system; it may be very active, but not in a way to make itself manifest; it takes an appreciable length of time for the virus to develop itself into a higher and more poisonous element—in other words, preparing itself for its future career of destruction. Surely if this is true we can not think of it as an inert mass localized at a single point. To me it is as absurd to suppose the syphilitic virus remains inactive at the point of inoculation for the space of several weeks, as it would be to suppose the poison of the rattlesnake would remain dormant at the point of inoculation for days.

Is there anything in the poison of syphilis, in regard to its absorption, to cause it to act differently from any other virus? If there is, how did we discover it? Not, surely, from practical experience, nor yet from analogy. Remault inoculated horses with acute glanders, excised the parts,

\* Read before the District of Columbia Medical Society, 1893.

and applied the actual cautery an hour afterward, yet the animals died of the disease.

A short *résumé* of the opinions of those in authority who have written upon this subject during the last few years may be of interest.

Von Zeissl, of the Vienna University, operated in thirteen cases, and "not in a single case did the excision weaken the course of the constitutional symptoms."

Dr. Taylor declares the abortive treatment never could have been entertained had it not been for confounding the chancroid with syphilis. He further says: "In the discussion of Dr. Morrow's paper before the Academy of Medicine, New York, in 1882, participated in by almost every surgeon in New York who had made venereal diseases a study, the opinion was unanimous that this method of aborting syphilis is a failure."

Humbert, of Paris, believes the operation is useless; he has had eleven failures out of twelve. Barthelemy, of Paris, expresses the same views.

At the International Medical Congress, Copenhagen, "Wilkes states that the results obtained by a commission appointed to study the subject of excision showed that such a plan is useless. He mentions that in the Dreadnought Marine Hospital there could long be seen a jugful of chancres collected by one of the surgeons and then exhibited as proof of the uselessness of excision" (Treatment of Syphilis at the Present Time, by Dr. von Zeissl).

Ricord declared that destruction at any time was absolutely useless.

Fournier, Lewin, Martineau, Newman, and many others have declared themselves opposed to the operation. Cornil collected 405 cases. Of these, 339 were unsuccessful, 105 successful. "Of these successes, some must be accepted with the greatest reserve; others can not withstand criticism."

On the other hand, Neisser believes the symptoms of syphilis may be modified and the disease itself many times prevented if the enlarged lymphatic glands are included in the operation. It is well here to remember Fournier's statement that the iliac and pelvic glands are also affected at this time.

Zarewicz believed it would modify but not prevent the disease. He operated in fourteen cases without success, the time of operation varying from twelve hours to twenty-two days.

Auspitz operates, even after the glands are affected, with favorable results.

Jullien, of Paris, though advocating the operation, considers it should be performed before the glands are involved. Unna, Pick, Huefer, and others favor the operation.

In regard to my personal experience in this operation, I will here report two cases.

Mr. M., aged twenty-five years, married, consulted me in regard to a sore situated on the prepuce. He said that while on a drunken spree he had had sexual intercourse with a prostitute just eighteen days previous to this visit. He first noticed a pimple on his penis the night before coming to me. He was in a very nervous, excited condition, and begged me to cut away the sore if there was the slightest danger of constitutional infection.

Explaining the matter to the patient that many syphilographers believed in the efficacy of excision, and that this would be a particularly favorable case, considering the short time that had intervened since the appearance of the sore, and as the inguinal glands were not yet enlarged, the operation was performed at this time—that is, twelve hours after the appearance of the sore. In seven weeks, or, to be exact, in forty-seven days, he returned to me with a typical erythematous rash upon the chest and abdomen, the inguinal glands enlarged, and some induration where the initial lesion had been removed. After this, though amenable to treatment, the disease took its usual course, not appreciably modified in any way. He reported that his wife also had a rash upon her chest which the attending physician declared to be syphilitic.

Mr. C., aged thirty-six, commercial traveler, showed me an abrasion upon the frenum that had occurred only *two hours* previously while having intercourse with a prostitute. He had noticed that the woman's mouth was sore. He came to me to have the abrasion treated. I cauterized it thoroughly with pure carbolic acid. In twenty days the patient returned showing an indurated chancre at the point that had been burned, the inguinal glands enlarged. The chancre was removed as in the previous case. In six weeks an erythematous rash appeared upon the abdomen, with the usual symptoms of the constitutional disease.

Even if no constitutional symptoms had occurred in these cases I should not have considered it sufficient proof that the immunity was due to the operation, as there is difficulty in making a positive diagnosis before induration of the sore and the glands takes place. Even after this occurs we can not be positive till the appearance of the secondary symptoms, when, of course, it would be too late to operate.

*Instantaneous* absorption is a physical impossibility. Therefore, for a time the poison of syphilis is confined to the point of inoculation. Granting this proposition, it follows that, if the virus is removed or destroyed within this time, the constitution will not be affected. This is a self-evident proposition, and it only remains for practical experience to show that the poison is localized for an *appreciable* time. It is my belief that if within a few hours the point of inoculation is thoroughly cauterized, syphilis will many times be prevented. In conclusion, I can not do better than to quote Dr. L. Brocq, who says (in the *Journal of Cutaneous and Genito-urinary Diseases*, January, 1892): "For us there exists but one legitimate and logical excision of the syphilitic chancre—the one which could be made immediately after the infecting coitus, just as we cauterize with a red-hot iron the bite of a mad animal. We should then have to do with a lesion probably still local if we intervened quickly enough. This brings us back practically to the common precept, 'After a suspected coitus wash with an alcoholic solution of bichloride of mercury and cauterize vigorously your excoriation, if you have any.'"

1527 SIXTEENTH STREET.

The Death of Dr. Milton Josiah Roberts occurred last week. He was a graduate of the Medical Department of the University of the City of New York, of the class of 1878. In the field of orthopaedics he had done some very creditable work and shown exceptional powers of invention.



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A SUCCESSFUL SECONDARY OPERATION FOR VOLVULUS.

DR. FINNEY, of Baltimore, reports in the *Johns Hopkins Hospital Bulletin* for March a case of volvulus of the sigmoid flexure in which detorsion was followed by success. The patient was first at the hospital in January, 1890, when he came under the care of Dr. Halsted, by whom an operation was performed for the relief of intestinal occlusion. The incision through the peritoneum liberated an enormously distended colon, which was found to have described a complete volvulus, making a constriction at the sigmoid flexure and at the ileo-cæcal valve. The patient was relieved and made a good recovery. He was taken with his second attack of occlusion late in December, 1892, or after an interval of thirty-five months. At the time of his second entrance into the hospital he had suffered considerably from pain, distention, and vomiting, but his condition was so good that an operation did not seem to be called for at once, and by the advice of Dr. Osler treatment by enemata, with the hips elevated, was resorted to, as had been done before with good palliative effect. At the end of a week, however, it was seen that the patient was losing ground, and it was decided to defer the operation no longer. Under ether anæsthesia an abdominal section was made, avoiding the line of the old cicatrix. The intra-abdominal pressure was so great that the colon escaped from the cavity before the surgeons could acquaint themselves with the true position of the parts, but the colon was judged to make a complete turn upon itself as it came out through the incision; a loud gurgling sound was heard at the same time. The man was relieved by the operation and had continued to improve in respect to his intestinal functions down to the time when the case was reported before the hospital medical society, which was eighteen days after the operation. There is, of course, a liability to recurrence of the volvulus, and at the time of the operation the feasibility of adding a step to the procedure, to prevent this return, was discussed. The desirability of shortening the mesocolon, a step advocated by Dr. Senn, was not apparent, on account of the great length of the mesocolon, for to shorten the mesocolon in such cases, the surgeons argued, would be to produce a dangerously sharp bend in the intestine and to reduce the circulation to an embarrassing extent.

In the discussion that followed, Dr. Halsted quoted from a recent paper by Braun, of Königsberg, to show that this case of Dr. Finney's was probably the first in which a successful second operation for volvulus has been recorded. There had been other second operations for recurrent volvulus, but it was not known that there had been any survivals. According to Braun, there have been seventeen cases of volvulus of the sig-

moid flexure wherein detorsion has been effected, with six recoveries. Of the eleven fatal cases, two were marked by return of the occlusion: one patient had a recurrence immediately after the operation, the other four months after. Both of them died. One had no second operation; the other was operated on, but died three days later, presumably of typhoid fever.

MINOR PARAGRAPHS.

PUBLIC SYMPHYSEOTOMY AS A STEP IN OPERATIONS ON THE BLADDER.

ACCORDING to the *Sanitäts-Vertheilung*, Dr. Albarrañ presented to the French Academy of Medicine on January 17th a man, aged thirty-one years, on whom this procedure had been done as part of an operation for the removal of an epithelioma of the bladder. This patient had undergone an operation for the removal of a vesical tumor in April, 1890, by a suprapubic incision. That growth was pediculate, but about a year later it was succeeded by a sessile epithelioma which proved the source of considerable hamaturia. The growth was situated close to the neck of the bladder and extended on to the left lateral wall. In performing the section it was first necessary to make a  $\lambda$ -shaped incision through the superficial tissues in order to get the penis moved to one side. The symphysis was divided with the knife, followed up by chisel and mallet, and then, by flexion and abduction of the thighs, the pubic bones were separated about two inches. This afforded the room required to exercise a suitable portion of the inferior and left lateral portions of the bladder. The wound in the bladder was closed by a double row of sutures, and a catheter was introduced and left in position. The patient was placed in a Bonnet's splint and kept there for seventeen days. An obstruction of the catheter caused a perineal fistula at about the end of the third week; otherwise the patient's convalescence was uneventful. The patient had gained in weight and was able to retain his urine for three hours or longer; he walked without discomfort and had resumed his former employment. There was no longer any perineal fistula, and the scar left by the wound was small. Wickhoff, of Vienna, has lately made known the results of experiments on the cadaver made to test the advantages of symphyseotomy over epicystotomy in operations on the prostate and for the removal of neoplasms. He recommends the operation in such cases as being both easy and safe. He believes it may also be serviceable in certain cases of vesico-vaginal fistula.

"PEACH FEVER," AN OCCUPATIONAL DISEASE.

THIS name has been given to a cutaneous irritation, with fever, not infrequently seen among the employees in the fruit-packing and canning establishments of Maryland and Delaware. A paper by Dr. C. L. Anderson, of Hagerstown, Maryland, is published on this subject in a recent number of the *Maryland Medical Journal*. Dr. Anderson divides the cases into two varieties: First, the psychotic variety, marked by mental exaltation, ideas of grandeur, seen in persons having a lively imaginative faculty; second, the true peach fever, caused by contact with the fruit in the course of its being picked and packed for market. This variety is defined as "a morbid condition of the respiratory and cutaneous surfaces, with some consequent systemic disturbances, due to irritation from the pubescence of the skin of the common peach—the *Amygdalus persea*." The Schneiderian membrane first becomes irritated and tumefied, and yields a large flow of serum and mucus. The frontal

sinuses, the conjunctivæ, and the larger bronchi may take on, by extension, the same kind of disturbance; cough and asthma may be excited in susceptible subjects. On the skin, the chief display of this amygdaline inflammation will be found about the wrists, forearms, neck, and forehead. It commonly begins and ends in a macular or papular eruption, but it may go on to a true dermatitis and to pustulation. The febrile rise may be as high as two degrees, which may be taken to indicate the amount of systemic discomfort induced by the respiratory and cutaneous irritation. Thin-skinned and neurotic young women suffer more and longer than the pachydermatous men and the older women. The more experienced workers seem to become proof against the irritant after some years in the business. There is no evidence to show that the disorder is contagious.

#### THE POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.

Thus energetic institution is going to turn to account the prospective attendance of distinguished medical men on the Columbian Fair. It announces special courses, extending from May to October, in which its faculty will have the co operation of Dr. Herman Knapp, Dr. Henry D. Noyes, Dr. Robert T. Morris, Dr. Emmons Lambier, Dr. B. Farquhar Curtis, and Dr. Robert Newman, of New York; Dr. Jonathan Wright, of Brooklyn; Dr. Joseph Price and Dr. Hobart Amory Hare, of Philadelphia; Dr. Henry O. Marcy, of Boston; Dr. Howard Kelly, of Baltimore; Dr. J. C. Mulhall, of St. Louis; Dr. Joseph Matthews, of Louisville; Dr. John O. Roe, of Rochester; Dr. Thaddeus A. Reamy, of Cincinnati; Dr. Rudolph Matas, of New Orleans; Dr. Joseph Eastman, of Indianapolis; Dr. Roswell Park, of Buffalo; Dr. D. J. Hayes, of Milwaukee; Mr. Reginald Harrison and Dr. H. Radcliffe Crocker, of London; Mr. Lawson Tait and Mr. W. Savage, of Birmingham; Dr. Thomas Moore Madden, of Dublin; Dr. Auvard and Dr. Charteris, of Paris; Dr. H. Krause, of Berlin; Dr. F. Schauta, of Vienna; Dr. T. Heryng, of Warsaw; and Dr. Massei, of Naples.

#### CARDIAC IRREGULARITY AND PALPITATION.

DR. JAMES TYSON, professor of clinical medicine in the University of Pennsylvania, closes a valuable article on The Treatment of Chronic Valvular Disease of the Heart, in the April number of the *Therapeutic Gazette*, by calling attention anew to the beneficial action of belladonna in the irregularity and palpitation of the heart that are common accompaniments of mitral disease. His observation leads him to conclude that a belladonna plaster placed over the palpitating heart is one of the most efficient agents in subduing it. Nitroglycerin also he finds often very useful for the same purpose, and sometimes for the relief of cardiac pain. The proper dose, he thinks, is a hundredth of a grain, rapidly increased to a fiftieth of a grain, three times a day.

#### ICHTHYOL IN THE TREATMENT OF GONORRHOEA.

DR. MANGANEU (*Annales de la Société médico-chirurgicale de Liège*, February, 1893; *Annales des maladies des organes génito-urinaires*, April, 1893) has used injections of solutions of ichthyol of varying degrees of strength, ranging from one per cent. to four per cent., from three to five times a day. When the strength of the solution is not greater than two per cent. there is no pain from the injections, and he has never known them to produce any complication. In many patients excellent results have followed, whether the disease was acute or lingering. The only inconveniences noted were the odor of the drug and the fact that it stained the linen.

#### MCGILL UNIVERSITY.

The *Maritime Medical News* has information that the McGill University Medical School has made an effort to draw Dr. William Osler away from the Johns Hopkins Hospital back to his *alma mater*. The *News* predicts that he will not go, for to do so would be to abandon resources and opportunities that he himself has done much to bring into their present admirable form. The resources of the McGill school are great and growing, but they can hardly yet be termed magnificent, except in their promise. Much has been done to improve the Canadian seat of learning, but it falls short of being an active rival of the Baltimore institution.

#### THE PREDOMINANCE OF FALLOPIAN-TUBE DISEASE ON THE LEFT SIDE.

DR. F. BYRON ROBINSON, of Chicago, finds that the lumen of the left Fallopian tube is larger than that of the right. This fact, he thinks, together with a restless rectum, a loaded sigmoid flexure resting on the left ovarian vein, the opening of the vein at right angles into the left renal vein, and the greater size of the left pampiniform plexus, accounts for the greater frequency of pelvic disease on the left side in women. He finds valves in the left ovarian vein in about two thirds of the bodies he examines. The size of the lumen of the left tube, he thinks, facilitates the admission of septic material.

#### CANTHARIDES IN EPITHELIAL NEPHRITIS.

The second number of the *New York Therapeutic Review* contains an article by Dr. E. Lancereaux, of Paris, in which the author expresses his conviction that tincture of cantharides is a valuable agent in the treatment of epithelial nephritis. He gives notes of two cases in which it was used in daily amounts of six drops to begin with, increased to ten or twelve. He thinks the drug acts by controlling the tendency to tumefaction of the epithelium of the tubuli contorti and thus obviating anuria.

#### THE TESTICLE-JUICE TREATMENT.

DR. PHATE (*Semaine médicale*, 1893, No. 14; *Revue générale de médecine, de chirurgie et d'obstétrique*, April 5, 1893) combats the notion that the amelioration following the use of the Brown-Séquard injections in locomotor ataxia and paralysis of long standing is due either to the glycerin contained in the liquid or to suggestion. Whenever he has substituted injections of glycerin for those of testicle juice, without the patient's knowing it, he has observed the amelioration disappear.

#### QUININE AS AN APPLICATION TO WOUNDS.

IN *Nouveaux remèdes* for April 8th there is mentioned an article by Dr. Alföldi, published in the *Pester medicinisch-chirurgische Presse* and summarized in the February number of the *Therapeutische Monatshefte*, who is convinced that a one-per-cent. solution of quinine sulphate is a more rapid detergent and cicatrizing in cases of infected wounds than either corrosive sublimate or iodoform. He adds that wounds that are free from infection also heal with astonishing rapidity under the use of quinine applications.

#### A MEDICAL CENTENARIAN.

*Progrès médical* says that the medical profession of Havre recently gave a banquet in honor of a physician who was born on the 4th of April, 1793. The old gentleman presided at the

dinner and showed a good appetite. A commemorative medal was presented to him, and he responded in a charming speech in which he said that his own father had lived to the age of a hundred and eight years, and that he himself was going to do his best to prolong his life to the utmost.

## ITEMS, ETC.

**Infections Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 2, 1893:

DISEASES.	Week ending Apr. 25.		Week ending May 2	
	Cases.	Deaths.	Cases.	Deaths.
Typhus . . . . .	12	8	10	10
Typhoid fever . . . . .	14	7	6	5
Scarlet fever . . . . .	169	18	196	18
Cerebro-spinal meningitis . . . . .	16	10	11	7
Measles . . . . .	162	6	135	10
Diphtheria . . . . .	115	38	106	31
Small-pox . . . . .	8	4	4	2

**The American Association of Obstetricians and Gynecologists** will hold its sixth annual meeting at the Russell House, Detroit, on Thursday, Friday, and Saturday, June 1, 2, and 3, 1893, under the presidency of Dr. Lewis S. McMurtry, of Louisville. The following is the preliminary programme so far as titles are announced: The president's address (The Present Position of Pelvic Surgery), by Dr. L. S. McMurtry, of Louisville; Abdominal Fixation, by Dr. Florian Krug, of New York; Endoscopic Tubes for Direct Examination of the Interior of the Uterus and Bladder, by Dr. Robert T. Morris, of New York; Placenta Previa, by Dr. William H. Wenning, of Cincinnati; What are the Indications for Abdominal Section in Intrapelvic Hemorrhage? by Dr. M. Rosenwasser, of Cleveland; The Treatment of Metritis, by Dr. E. Pietranera, of Cordova, A. R.; A Plea for Better Surgery in the Closure of the Abdominal Incision, by Dr. H. W. Longyear, of Detroit; Remarks on the Treatment after Abdominal Section, by Dr. C. C. Frederick, of Buffalo; The Management of the Abdominal Incision, by Dr. Charles A. L. Reed, of Cincinnati; Dilatation of the Cervix for Dysmenorrhœa, by Dr. E. M. Pond, of Rutland; Intra-uterine [sic] Pregnancy, with Report of Cases, by Dr. George S. Peck, of Youngstown; A Contribution to the Study of Ectopic Gestation, by Dr. E. Arnold Praeger, of Nainaimo; A Few Practical Notes on the Establishment of Anastomosis between the Gall-bladder and Intestine for Obstruction of the Common Duct, with the Relation of a Case of Obstruction of the Common Duct by a Small Growth, by Dr. James F. W. Ross, of Toronto; Vaginal Hysterectomy for Malignant Disease, by Dr. Rufus B. Hall, of Cincinnati; The Care of Pregnant Women, by Dr. John Milton Duff, of Pittsburgh; A Contribution to the Pathology of Surgical Disease of the Gall-bladder, by Dr. Walter P. Manton, of Detroit; The Legal Questions in Gynecological Operations on the Insane, by Dr. Walter P. Manton, of Detroit; Pelvic Abscess, by Dr. I. S. Stone, of Washington; Central Rupture of the Perineum; its Causation and Prevention, by Dr. John C. Sexton, of Rushville; A Case of Myomectomy with Extra-peritoneal Treatment of the Pedicle, followed by Pregnancy and complicated by Hemorrhages through the Abdominal Cicatrix, by Dr. X. O. Werder, of Pittsburgh; The Anatomy and Surgical Importance of the Perirenal Cellulo-adipose Tissue, by Dr. L. H. Dunning, of Indianapolis; Report of Cases from Practice, with Remarks on the Same, by Dr. A. Vander Veer, of Albany; Further Observations on the Relation of Pelvic Disease and Psychological Disturbances in Women, by Dr. George H. Rohé, of Catsville.

**Mount Sinai Hospital.**—The following appointments were made on April 23d: Dr. B. Sachs, consulting neurologist; Dr. S. Lustgarten, consulting dermatologist; Dr. Morris Manges and Dr. N. E. Brill, assistant visiting physicians; Dr. H. Lilienthal and Dr. W. W. Van Arsdale, assistant visiting surgeons; Dr. J. Brettau, assistant visiting gynecologist; Dr. C. H. May, assistant visiting ophthalmologist; Dr. H. Koplik, assistant visiting physician for children.

**The New York Infirmary for Women and Children.**—On Wednesday afternoon, the 3d inst., new wards were thrown open for inspection, also the nurses' home and the laboratories of the Woman's Medical College.

**Army Intelligence.**—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 23 to April 29, 1893:

**BYRNE, CHARLES C.**, Lieutenant-Colonel and Deputy Surgeon-General. The leave of absence granted is hereby extended one month.

**KENDALL, WILLIAM P.**, Captain and Assistant Surgeon, is relieved from duty at Fort Douglas, Utah, and ordered to Willett's Point, N. Y., for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**CARTER, WILLIAM F.**, Captain and Assistant Surgeon, is relieved from duty at Willett's Point, N. Y., and ordered to Fort Sill, Oklahoma Territory, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**TAYLOR, B. D.**, Captain and Assistant Surgeon, is relieved from duty at Fort Sill, Oklahoma Territory, and ordered to Fort Bliss, Texas. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**OWEN, WILLIAM O., JR.**, Captain and Assistant Surgeon, is relieved from duty at Jefferson Barracks, Missouri, and ordered to Fort Bayard, New Mexico, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**COMEGYS, EDWARD T.**, Captain and Assistant Surgeon, is relieved from duty at Fort Bayard, New Mexico, and ordered to Fort Wadsworth, New York, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**POLHEMUS, A. S.**, Captain and Assistant Surgeon, is relieved from duty at Fort Monroe, Virginia, and ordered to report at Fort Douglas, Utah, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**BANISTER, WILLIAM B.**, Captain and Assistant Surgeon, is relieved from duty at Washington Barracks, District of Columbia, and ordered to Fort McIntosh, Texas, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**MCREECHY, GEORGE**, Captain and Assistant Surgeon, is relieved from duty at his present station, and ordered to Fort Sidney, Nebraska, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**TESSON, LOTIS S.**, Captain and Assistant Surgeon, is relieved from duty at Fort Sidney, Nebraska, and ordered to Jefferson Barracks, Missouri, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

**WYETH, MARLBOROUGH C.**, Captain and Assistant Surgeon, is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department; to take effect when Assistant Surgeon Ware shall have returned to Fort Supply, Indian Territory.

**WOODRUFF, EZRA**, Major and Surgeon, is hereby granted leave of absence for twenty days, to take effect after May 1, 1893.

**WINTER, FRANCIS A.**, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Wingate, New Mexico, and will report in person to the senior commissioner of the International Boundary Survey Commission at Yuma, Arizona Territory, for duty, relieving McVay, HARLAN E., First Lieutenant and Assistant Surgeon. First Lieutenant McVay, on being relieved by First Lieutenant Winter, will report in person to the commanding officer, San Carlos, Arizona Territory, for duty at that station, relieving SHILLOCK, PAUL, Captain and Assistant Surgeon. Captain Shillock, on being relieved by First Lieutenant McVay, will report in person to the commanding officer, Fort Wingate, New Mexico, for duty at that post.

## Promotion.

**RAFFERTY, OGDEN**, First Lieutenant and Assistant Surgeon, to be Assistant Surgeon, with the rank of Captain, from March 26, 1893, after five years' service, in conformity with the act of June 23, 1874.

**Naval Intelligence.**—Official List of Changes in the Medical Corps of the United States Navy for the week ending April 25, 1893:

**CLARK, J. H.**, Medical Director. Ordered as President of Naval Medical Examining Board.

**HOEHLING, A. A.**, Medical Director. Detached as President of Naval Medical Examining Board and placed on waiting orders.

**WEDEKIND, L. L. VON**, Passed Assistant Surgeon. Detached from the U. S. Steamer Wabash and ordered to the U. S. Steamer Alliance.



## Society Meetings for the Coming Week :

MONDAY, May 8th: New York Academy of Medicine (Section in Genito-urinary Surgery); Lefevre Medical and Surgical Society (New York, private); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association; Shelby County, Indiana, Medical Society (Shelbyville).

TUESDAY, May 9th: New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Albany (semi-annual), Greene (annual—Cairo), and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Camden (annual—Camden), Morris (annual), and Sussex (annual), N. J., County Medical Societies; Norfolk, Mass., District Medical Society (election—Hyde Park); Franklin, Vt., County Medical Association (annual); Northwestern Medical Society of Philadelphia; Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, May 10th: New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (New York, private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, N. Y.; Pittsfield, Mass., Medical Association (private); Franklin (annual—Greenfield), Hampshire (annual—Northampton), and Worcester (annual—Worcester), Mass., District Medical Societies; Philadelphia County Medical Society.

THURSDAY, May 11th: New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine (New York); Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, May 12th: Yorkville Medical Association (private); German Medical Society of Brooklyn; Brooklyn Dermatological and Genito-urinary Society (private); Medical Society of the Town of Saugerties, N. Y.

SATURDAY, May 13th: Obstetrical Society of Boston (private).

## Answers to Correspondents :

No. 401.—We believe that you would have to submit to the examination.

No. 402.—Lauder Brunton's work on Digestion and its Derangements (or some equivalent title).

No. 403.—The instrument is of considerable value.

## Letters to the Editor.

## CRANIECTOMY.

1729 CHESTNUT STREET, PHILADELPHIA, April 27, 1893.

To the Editor of the New York Medical Journal :

Sir: In your issue for April 22d, page 454, I observe that Dr. Starr states "that the operation of craniectomy had been performed apparently without regard to the age of the patient. Keen had operated on one patient nineteen years old; Hammond, Sr., had operated on one aged twenty two years; Weir had operated on one aged eighteen years." I beg leave to say that the oldest patient I have ever operated on was six years and a half old, and that I have uniformly declined to operate on any child past seven years of age. Whether the statement that Dr. Hammond operated on one at twenty-two and Weir at eighteen is correct I do not know, but it has always seemed unwise to me to operate on any patient except in early childhood.

W. W. KEEN, M. D.

## Proceedings of Societies.

## PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of March 22, 1893.

(Concluded from page 478.)

## A Discussion of the Legal Aspect of Criminal Abortion.

—MR. WILLIAM W. PORTER read the following: It is with hesitation that I participate in the discussion of this subject, because the topic is somewhat remote from the matters which daily engross those of us of the legal profession who devote our attention to questions of a so-called civil character. When, however, we go down to the foundation of the matter, there is little difference in kind between proceedings for the punishment of crime and the settlement of civil disputes. A crime is simply a wrong, a deflection from moral rectitude; but a wrong of so heinous or grievous a character as to affect the public as well as the individual upon whom the direct injury is inflicted.

The great commentator on the common law has said: "In all cases the crime includes an injury. Every public offense is always a private wrong and somewhat more. It affects the individual, and it likewise affects the community."

The crime of abortion, or attempting to procure abortion, is a wrong committed by one individual upon another, but it is of so horrible a character that a punishment for its commission has been inflicted by legislation in order to prevent its frequent occurrence.

The legislation in Pennsylvania upon the subject of criminal abortion is contained in two sections of the Act of March 31, 1860, known as the Penal Code. It is applicable to the case of death following an attempt to procure abortion. The full text of the section is as follows:

"SECTION 87. If any person shall unlawfully administer to any woman, pregnant or quick with child, or supposed and believed to be pregnant or quick with child, any drug, poison, or other substance whatsoever, or shall unlawfully use any instrument or other means whatsoever, with the intent to procure the miscarriage of such woman, and such woman, or any child with which she may be quick, shall die in consequence of either of said unlawful acts, the person so offending shall be guilty of felony, and shall be sentenced to pay a fine not exceeding five hundred dollars, and to undergo an imprisonment by separate or solitary confinement at labor not exceeding seven years."

Section 88 of the same act provides for the penalty to be imposed for procuring or attempting to procure abortion where death does not ensue. The full text of the section is as follows:

"If any person, with intent to procure the miscarriage of any woman, shall unlawfully administer to her any poison, drug, or substance whatsoever, or shall unlawfully use any instrument, or other means whatsoever, with the like intent, such person shall be guilty of felony, and being thereof convicted, shall be sentenced to pay a fine not exceeding five hundred dollars, and undergo an imprisonment by separate or solitary confinement at labor not exceeding three years."

In so distinguished an assembly of the medical profession little interest can be felt in any attempt to interpret the meaning of these legislative enactments. No reputable member of the medical profession would consent to participate in the commission of so heinous a crime as attempting criminal abortion. Were the statute book barren of any enactment there would be no danger from such a source of any transgression of what a true moral sense imposed. I did not therefore propose to enter upon any discussion of the direct provisions of this act.

It may be well, however, to learn what the Supreme Court said in an opinion rendered ten years before the adoption of the present existing legislation, in the case of *Mills vs. Commonwealth*, 13 Pa. St., 633, defining in what the crime consists. The opinion of the Court was delivered by Mr. Justice Coulter. He says: "The error assigned is that the indictment charges the defendant with intent to cause and procure the miscarriage and abortion of the said Mary Elizabeth L., instead of charging the intent to cause and produce miscarriage and abortion of the child. But it is a misconception of the learned counsel that no abortion can be predicated of the act of untimely birth by foul means.

"Miscarriage, both in law and philology, means the bringing forth the fœtus before it is perfectly formed and capable of living; and is rightfully predicated of the woman, because it refers to the act of premature delivery. The word abortion is synonymous and equivalent to miscarriage in its primary meaning. It has a secondary meaning, in which it is used to denote the offspring. But it was not used in that sense here, and ought not to have been. It is a flagrant crime at common law to attempt to procure the miscarriage or abortion of the woman, because it interferes with and violates the mysteries of Nature in that process by which the human race is propagated and continued. It is a crime against Nature which obstructs the fountain of life, and therefore it is punished. The next error assigned is that it ought to have been charged in the count that the woman had become quick. But, although it has been so held in Massachusetts and some other States, it is not, I apprehend, the law in Pennsylvania, and never ought to have been the law anywhere. It is not murder of a living child which constitutes the offense, but the destruction of gestation by wicked means and against Nature. The moment the womb is instinct with embryo life, and gestation has begun, the crime may be perpetrated. The allegation in this indictment was therefore sufficient, to wit: 'that she was then and there pregnant and big with child.' By the well-settled and established doctrine of the common law, the civil rights of an infant *in ventre sa mere* are fully protected at all periods after conception."

The only interest which the reputable practitioner can have in the subject of criminal abortion may be discussed in answer to two questions, both arising out of a professional call to attend a patient upon whom an abortion has been attempted. In such a case the medical attendant is interested to know—

I. What personal risk he assumes in attending upon such a case, and

II. What moral or legal obligation he incurs in connection therewith.

I. He does incur some risk in such a case.

1. He may, unless he steers his course carefully, be involved as an accessory after the fact.

The Act of March 31, 1860, also contains in Section 180 the following provision:

"Every principal in the second degree, or accessory before the fact, to any felony punishable under this act, for whom no punishment has been hereinbefore provided, shall be punishable in the same manner as the principal in the first degree is by this act punishable. Every accessory after the fact to any felony punishable under this act, for whom no punishment has been hereinbefore provided, shall, on conviction, be sentenced to a fine not exceeding five hundred dollars, and to undergo an imprisonment, with or without labor, at the discretion of the Court, not exceeding two years. And every person who shall counsel, aid, or abet the commission of any misdemeanor, punishable under this act, for whom no punishment has been hereinbefore provided, shall be liable to be proceeded against and punished as the principal offender."

What an accessory means in the case of an abortion it is difficult to say, inasmuch as the books seem to contain no precedent, and the courts have given no expression of opinion. While this fact adds to the difficulties of discussion and determination, it also may be looked upon as an evidence that the danger to the physician in such a connection is small, inasmuch as none seem to have been pursued by litigation.

It practically means that the physician must be careful when called in to treat a patient upon whom such an operation has been performed, that he shall do nothing to assist in the purpose of the perpetrator of the operation, except that which is necessitated by the condition of the patient, to save life or restore health. The best safeguard in a case where the physician is compelled to complete the operation (if such a case ever arises) is to have another reputable practitioner in consultation and present at the time of treatment.

2. One who has committed an abortion resulting in death can not be convicted of murder. In the case of *Commonwealth vs. Railing*, 113 Pa. St., 37, decided in 1886, it was held that the 87th Section of Criminal Code took the crime therein specified, namely, procuring miscarriage resulting in the death of the child or woman, out of the class designated as murder, and made it a felony of lesser grade, and prescribed the punishment therefor; hence, if one cause the death of a woman in attempting to procure miscarriage, he can not be indicted for murder.

3. The physician in cases of abortion may, by the action of evilly-disposed persons, be involved in the commission of a crime perpetrated wholly by another. When a physician is charged with such a crime, the evidence of one who is charged as a co-defendant may be used against him.

A somewhat recent case which has appeared in the reported decisions of the Supreme Court of Pennsylvania is that of *Cox vs. Commonwealth*, 125 Pa. St., 94. The decision was filed in March, 1889. This was the case of a Dr. Cox, of Easton, Pa., who was accused of having procured an abortion upon the person of a young unmarried woman who was taken to Easton for the purpose of having the operation performed. There was little to connect the physician with the commission of the act (except the fact that he had engaged a nurse for the patient in advance of her arrival in Easton) beside the testimony of one Evans, who was indicted with the physician as a party to the crime. Evans was called as a witness by the Commonwealth, and testified that he had made arrangements with Dr. Cox to perform the operation at Easton, and that he subsequently accompanied the young woman to Easton to a hotel. He knew nothing of the actual operation. Upon this testimony, in large measure, the doctor was convicted of the offense, the Supreme Court, by Mr. Chief-Justice Paxson, conceding that juries may convict upon the uncorroborated testimony of an accomplice.

A physician *might* thus be convicted on the uncorroborated testimony of a self-confessed accomplice, provided such accomplice was able or willing to testify to all of the facts leading up to a commission of the act and to the act itself. In the case cited the commission of the act itself was independently proved.

An ill-disposed man *might*, in order to trouble and perhaps blackmail a physician, falsely confess himself an accomplice, and thus, practically unsupported, secure a verdict of guilty against a physician whose only connection with the case might have been treatment of a patient who had committed the crime upon herself. Again, the patient herself might be a confederate and expect to be a participant in the reward which the blackmailer hoped to force from the physician for silence. It is true that an alleged accomplice must persuade the jury by whom the case is tried that he is telling the truth, and it is

difficult to so persuade a jury without some corroborating evidence. I speak here not of what is likely, but what is possible to happen. There may be blackmailers who would go so far. The method to avoid the danger is the association of a consulting physician immediately on being called to treat the case, or, if it shall seem to the physician an aggravated case of wrongdoing by a person other than the sufferer, to report the case to the police authorities.

4. A most important question was for some time an open one—namely, whether the dying declarations of a person upon whom an abortion has been committed are admissible in evidence. It was supposed to be set at rest by the case of *Railing vs. Commonwealth*, 110 Pa. St., 100, decided in 1885, where it was distinctly held that such declarations could not be accepted in evidence on the trial of one charged with the crime.

I observed by the Philadelphia *Public Ledger* of this morning that an act has been introduced in the Senate of Pennsylvania making dying declarations admissible as evidence. I have been unable to secure a copy of the proposed act.

In view of the fact that such a bill is, or soon will be, under discussion, a quotation of some length from the opinion of Mr. Justice Green, of the Supreme Court of Pennsylvania, delivered in the case above referred to, showing the reasoning by which the result was reached by the Court, may be permissible. He says: \*

"The principal question in this case is that which relates to the admissibility of the dying declarations of Annie F. The defendant was charged with administering to her a drug with intent to procure a miscarriage, and it was also charged that her death resulted as a consequence. There were four counts in the indictment, and all of them charged the death of the woman as a result of the defendant's unlawful act. It is entirely unquestioned that dying declarations are admissible only in homicide cases, as a rule, and that the death of the deceased must be the subject of the charge, and the circumstances of the death the subject of the declaration: 1 Greenl. Ev., Sec. 156, 13th ed.; Whart. Cr. Ev., Sec. 276; Whart. Am. Cr. Law, Sec. 669 *et seq.* It is equally unquestioned that there is no grade of homicide involved in this case, the offense charged being the one commonly known as abortion. It is argued, however, with much force, that the death of the woman, when it occurs, is a necessary ingredient of the offense under our statute, and therefore brings the case within the rule above stated. It is claimed that the death is in part, at least, the subject of the charge. In one sense this is true. But the question is, Is it so in the real sense of the rule which controls the subject? That inquiry involves the necessity of an examination of our criminal statute against abortion. It consists of two sections, the 87th and 88th of the Criminal Code of 1860." Here the learned judge states the substance of the two sections. He then continues: "In the last case the offense is complete without the death of the woman or child. In both cases the grade of the offense is the same—felony. In both, the acts done by the prisoner are the same. In the first, if those acts are followed by the death of the mother or child as a consequence—that is, in the relation of effect to a cause—a difference results in one of the penalties imposed: the possible fine is the same, but the possible imprisonment is longer—seven years, instead of three. The facts which constitute the crime are precisely the same in both cases, to wit, the administering the drug, or using the instrument, with intent to procure a miscarriage. It follows that the death is no part of the facts which go to make up or constitute the crime. It is complete with the death or without it. The death, therefore, considered in and of itself is not a constituent element of the offense. It may happen or it may not. If it does not happen, a certain possibility of penalty follows. If it does happen,

the same character of penalty results, but with a larger possibility, not a certainty, in one of the items. This seems to be a precise expression of the difference between the cases provided for in the two sections. This being so, the question recurs, Is the difference between the two of such a character as to change the application of the rule of law relating to the admissibility of dying declarations? Of course they are not admissible if death does not result as a consequence from the unlawful acts. Therefore, if the woman should subsequently die from some entirely different and independent cause, her dying declarations in relation to a prior miscarriage would be clearly incompetent. In case she does die in consequence of the unlawful acts, the crime charged and tried is not homicide in any of its forms, but the felony of administering a drug or using an instrument with intent to produce a miscarriage. In its facts and in its essence it is the same crime that is charged and tried if no death results. The death, when it occurs, is an incident, the sole purpose of which is to determine whether the imprisonment of the defendant may be longer than when death does not occur. The facts which constitute the crime may not be proved by any declarations of the woman when death does not follow, or when it follows from some other cause. Why, then, should the very same facts be proved by such declaration when death does result? Not because it is a homicide, and the rule as to dying declarations admits them in such cases, because it is not a case of homicide in any point of view. Not because the death is the subject of the charge, for the charge is the attempted or accomplished miscarriage by means of a drug or instrument. That crime is as fully completed without the death as with it. The death, therefore, is not an essential ingredient of it. Its function under the statute, when it occurs as a consequence, is not to determine the *factum*, or the character, or the grade of the crime, but the character of the penalty that should be endured by the criminal. Of course, if the statute had declared that when death resulted the offense should be manslaughter or any other grade of homicide, the case would be entirely different. Then the death would be an essential ingredient of the offense, and would be the subject of the charge, and the rule as to dying declarations would apply. But such is not this case, and we do not think it wise to enlarge the operation of the rule so as to embrace cases other than homicide strictly. The objections to the admission of such testimony are of the gravest character. It is hearsay, it is not under the sanctity of an oath, and there is no opportunity for cross-examination. It is also subject to the special objection that it generally comes from persons in the last stage of physical exhaustion, with mental powers necessarily impaired to a greater or less extent, and at the best represents the declarant's perceptions, conclusions, inferences, and opinions, which may be, and often are, based upon imperfect and inadequate grounds. Nor is the reason ordinarily given for their admission at all satisfactory. It is that the declarant in the immediate presence of death is so conscious of the great responsibility awaiting him in the near future if he utters a falsehood, that he will, in all probability, utter only the truth. The fallacy of this reasoning has been many times demonstrated. It leaves entirely out of account the influence of the passions of hatred and revenge which almost all human beings naturally feel against their murderers, and it ignores the well-known fact that persons guilty of murder, beyond all question, very frequently deny their guilt up to the last moment upon the scaffold."

II. We come now to the second grand division of the subject—namely, the obligations resting upon the physician or surgeon who is called upon to attend in a case of criminal abortion. Having satisfied himself that the injury to the patient has not been self-inflicted, should the physician conceal the truth or make it known?



In answering this question he must consider—

1. His duty to his patient.
2. His duty to his profession.
3. His duty to the public at large.

In discussing these matters we are met with ethical rather than legal considerations. I have been able to find nothing as a guide, either in legislative enactments or in cases decided by the courts.

Therefore what is here said is only by way of suggestion and discussion. The determination of the questions of duty in each case must be relegated to the forum of individual conscience.

1. The duty to the patient.

Take the following as an illustration: A reputable head of a family has called in the services of the family doctor to attend a sick daughter. The physician has soon evidence sufficient to indicate a case of criminal abortion. He learns from the patient in confidence that a certain physician, or her lover, or both, have assisted in producing her serious condition.

There is a plain duty to the girl and to her father, to prevent scandal, and yet an act has been committed which has been pronounced by the State law a felony. Silence means that the criminal must go unpunished. It is a condition that, unfortunately, men of the medical profession have sometimes to face.

There is no statutory penalty imposed for silence. Can it be doubted that the physician in such a case is justified in holding his peace *so long as a fatal termination of the illness is not impending?*

Information received by counsel from his client is regarded by the law as a privileged communication, and he can not be compelled to divulge the information so received. In the case of a physician, however, the rule of the common law seems to be that he can be compelled to divulge communications received from his patient. There is to my mind, in this distinction between the professions, an illogical discrimination, and I believe that in most cases a physician would rather undergo the punishment imposed by a court for silence than violate the professional confidence. Some of the States (for example, New York) have adopted legislation making confidential communications between patient and physician privileged, and I would respectfully suggest that measures to secure such legislation in Pennsylvania might well be taken, both for the protection of the medical practitioner and the sanctity of the professional relation.

2. The duty to the profession.

A loyal physician holds his profession in high honor. To have men within its ranks who will lend themselves to the commission of crime is a disgrace. Not to punish them will only lead them to greater confidence in their ability to escape punishment and encourage them in their infamous behavior.

This consideration has weight in determining the course of duty. The conclusion therefore reached is that where the professional obligation to the patient will permit, duty to the profession must impel disclosure (at least to the profession, and better, to the police authorities) of the name of the wrongdoer.

3. What of the public generally?

The physician is a citizen. He owes a citizen's duty to the community at large. If he or any other citizen knows that a crime has been committed by a particular person, and fails to bring the criminal to justice, he falls short of his obligation. It is true that in the smaller offenses (especially those involving property) we can hardly be expected in all cases coming under our knowledge to see that each wrongdoer is punished.

When the urchin, with our eyes upon him, pilfers an apple from the corner stand, we do not feel that we have committed

a grievous sin of omission if we do not personally inform the first policeman, or if we do not ourselves pursue the little culprit to his capture, in order to insure his punishment.

If, however, we see serious bodily injury inflicted, or murder impending, who of us would not, at personal inconvenience or peril, see to the capture and punishment of the perpetrator?

If the patient is to recover from the effects of the crime perpetrated on her, and the injury is slight, by analogy, there is some justification for silence.

If she is to die, and the injury is thus greater, silence is not only dangerous, but it is without justification. It is not easy, certainly, to justify this conclusion, since, under the act, the criminal intent is the same in both cases, the only difference being in the result. Death from criminal abortion entails upon the attending physician who conceals it the necessity for a written lie in the certificate which he is required to give by the registration acts. Should he certify the true cause of death he can not avoid publicity, and may be subjected to censure for failing to report the case sooner to the authorities. If he certifies falsely and is discovered, he runs the risk of being charged with the commission of the crime itself.

Finally, the rules of conduct may be summarized thus:

1. When called to such a case, immediately, on suspicion of criminality being aroused, call in another physician to your aid.
2. If consistent with your primary duty to the patient, report the case (even though not likely to be fatal) to the district attorney.

3. As soon as a fatal result appears likely, report the case to the district attorney, who (if requested) will doubtless never let you be known as his informant, but who will be enabled by other means of proof to bring a criminal to justice.

4. If you have not reported the case, and the end is death, do not be led into the giving of a false certificate of death.

In conclusion, it will be seen that what has been said is almost wholly discursive. It would ill become a member of our profession to assume to instruct in the ethics of the sister profession. It can not truthfully be said that the legal profession has a higher moral standard than the medical, and to each conscientious member of both must it be left to do the right as to conscience and good morals it shall appear.

The Hon. GEORGE S. GRAHAM said: I should hesitate to add anything to this discussion were it not for the fact that there are one or two points on which I differ with those who have preceded me. I have nothing to say about the definition and the law; both have been thoroughly and amply stated. I want to call attention, first, to the question of dying declarations; and, second, to the attitude of the physician with relation to this offense. I wish to call the attention of this organization to the bill that is now pending in the Legislature of Pennsylvania, intended to cover a gap in the criminal law through which more men escape conviction, who justly deserve it, than through any other. I am not here to criticise the ruling of the Supreme Court, but the effect of that ruling which excludes the dying declaration from admissibility as a piece of evidence. In conversation with a gentleman, a member of this society, he suggested to me the desirability of some such law, and in pursuance of that suggestion I prepared the bill which was introduced yesterday, and therefore the oburgations of my friend fall upon my head. The bill is plain, simple, and to the point; it provides that in all cases of prosecution for abortion where death results the dying declaration may be admitted as evidence. It does not change the rules under which that declaration is admissible. It simply remedies what was disturbed and broken by the decision in *Commonwealth vs. Rauck*. The question was discussed in that case whether or not such declara-

tions were admissible in prosecutions for abortion where the person died. In our county we had taken the ground that this crime involved an inquiry into the question of a death, and that, therefore, the dying declaration was admissible. We were able to convince the judges of our courts of Quarter Sessions that that was the true view, and there were three decisions sustaining that view. The case referred to went up from Dauphin County, and the Supreme Court reversed the decisions in the county courts and held that because of the passage of the Act of Assembly which called abortion a felony and defined it as the crime of abortion, it was withdrawn from the list of homicides, and that dying declarations were only admissible in cases of homicide. It is conceded by all lawyers that abortion did, at common law, come under the classification of homicide; a person might have been convicted at common law, according to the circumstances, of murder in the second degree or of manslaughter. It was owing to the passage of that act, which lifted criminal abortion out of the category of homicide and placed it in a new relation to the criminal code, that the Court held that dying declarations in this kind of a case were not admissible. My friend quoted the *obiter dicta* of the judge. That is no part of the decision and no part of the authority of the case itself. Speaking of dying declarations on the broad ground whether they should be admitted or not, the judge said that they are the merest hearsays, and should not be permitted to appear in evidence to fasten crime. Here is an anomaly to which I direct your attention. While the judge reasoned that they should be excluded in a crime which had been lessened and made of smaller magnitude in the eye of the law, he admitted that in the higher and graver crimes, such as murder and manslaughter, the necessity of society demanded that dying declarations should be admitted. Mark the ground on which they are to be admitted—to wit, the necessity of society. If there is a single instance of criminality in which the necessity of society demands the admission of dying declarations as a piece of evidence, it is in that most secret of all offenses, the crime of abortion. Now, surely the reasoning of that learned judge is utterly fallacious in another point. Said he: "The argument usually employed that the solemnization of the thoughts at the idea of dissolution will cause the person to speak the truth, is not applicable, for we leave out the element of the passions of hatred and revenge." Why, gentlemen, by a parity of reasoning you would destroy all testimony, for the same line of argument, logically pursued, would make you exclude the evidence of every witness. I submit that the reason upon which dying declarations are admitted has a good foundation. It is well known that the approach of death solemnizes the thoughts of every man or woman. They may laugh and scoff at death in health, but I tell you when they come face to face with the hour of dissolution, it must be the rare exception indeed, in which the storm of passion can dominate the soul and make one commit perjury of the worst kind, standing on the threshold of the future. I say, therefore, that dying declarations, if admissible in homicide of the higher grades, should be admitted in this offense of abortion, and I come to ask your body to pass some resolution asking for such a law.

I want to say a word about the duty of the physician. I appreciate what has been said by Dr. Parish and Mr. Porter with regard to the sentiment that gathers about the relationship of physician to patient. The picture drawn by Mr. Porter appeals to the sentiments of us all, but there is only one test, and it is not the test of sentiment. It is, is the thing intrinsically right, or is it wrong? We are not considering what the law ought to be, but what it is. It is the duty of every citizen, if he knows that a crime has been committed, to make it known. If an offense is grave enough for the law to recognize

and fix a penalty on, you have no right to set that law aside and say that it is too insignificant for you to notice. The physician can only escape censure or prosecution by revealing the fact that an offense has been committed. It would be no defense in a court of justice for a physician to say that he kept it quiet because he wished to be a shield between a suffering female and the disgrace that might ensue. Of course, in the graver cases where death ensues, it is imperative that the matter should be reported. I ask you, laying aside sentiment, to point out a single reason why there should be a distinction between the cases where death follows and those where death does not follow. The distinction is attempted to be drawn because one is of less importance, but my answer to that is that the law does not say that it is the duty of the citizen to report only important criminal cases. Besides, both are felonies. It is his duty to report every criminal case, and the physician who learns of such a crime and conceals it becomes an aider and abettor in the crime. Surely no man can rise and say that on the basis of sentiment he has a right to become a criminal. That is the result, for if by concealment he becomes a *particeps criminis*, surely the duty to speak must be regarded as absolute.

CORONER SAMUEL H. ASHBIDGE said: I shall not enter into this discussion from a medical or a legal standpoint, but merely from that of practical observation and with reference to the rules that we lay down in our office for the purpose of conducting cases of the character under consideration. The question has been raised whether or not these cases should be reported. During the year we have hundreds of cases reported to our office by physicians, who state that the patient is suffering from peritonitis which they believe to be the result of operation for the induction of abortion. Such information is always treated as confidential, and the name or residence of the patient is not asked. I say to the physician that if the patient dies and he believes that the death is due to criminal abortion, it is his duty to report it. I am glad to state that there are few deaths in comparison to the number of cases reported.

Abortions are prevalent in all communities; but I want to say, to the credit of our city, that there are fewer abortions in Philadelphia than in any other great city on this continent. One reason of this is the high moral character of the medical profession of this city. It is rare that you find a graduate of a regular reputable medical college who will stoop to the crime of abortion.

I agree with the district attorney in regard to the enactment of a law making dying declarations admissible. It is very difficult for us to procure unmistakable evidence unless from the victim herself. Crimes of this character are of such a secret nature that often they are only known to the victim and the perpetrator. In Philadelphia, at the present time, detection of this crime is less frequent than at any other period, according to my knowledge. I can not say that it is because more skill is used, but there does not seem to be any lessening of the offense. We have the opportunity of learning many things that are never published to the world—in fact, it is not our duty as public officials to reveal scandals that may come to our knowledge. If the majesty of the law has been maintained we feel that we have done all that is incumbent upon us.

DR. HARRIS A. SLOCUM said: I agree with Dr. Parish that the diagnosis of criminal abortion is a difficult matter except in cases of puncture, or where there are evidences of laceration where accident can be excluded.

The responsibility of the physician in treating these cases is a matter that has been brought to my mind a number of times. The district attorney has said that it is the duty of the physician to report these cases; but if the names of the patients are insisted upon I think that there are few physicians who

would not object. We know that the counsel for a criminal is permitted to retain the facts given to him by his client. Would a lawyer who was not counsel for the prisoner, but who was told the facts, be permitted to retain them?

Mr. GRAHAM said: He would have to tell them. The law says that the counsel shall not divulge the facts told him by his client, but it says that the physician shall tell those given him by his patient.

Dr. SLOCUM said: I have always been under the impression that facts of this kind communicated to a physician were to be held sacred and not divulged, and I think the majority of physicians hold the same opinion. Surely the law is unjustly discriminating when it extorts such evidence from a man whose whole duty is to relieve suffering or save life, and who is called in an emergency for that purpose, and that alone; yet the very one whose duty it should be to contribute to the administration of justice, and who is officially stamped for that purpose, is permitted to have knowledge of incriminating facts and to keep silent about them, even during the crucial trial in court, when every effort is apparently being made to know the truth and the whole truth.

I am glad, however, to get this official information respecting our duty in these cases in the sight of the law. It is a point that many of us have wished to be certain about. We now know that we are confronted by the unpleasant alternatives of breaking the law or of betraying the trust reposed in us by becoming informers, and it is probable that every physician in Philadelphia, even those of the highest reputation and of the greatest integrity, will fall into one line or the other. It seems to me that in the cause of right and justice that portion of the law which relates to this subject should be so modified as to leave some latitude to the discretion of the physician. No class of men at the present day is doing so much to prevent this crime as is that of medicine, and yet a representative of that class is liable, at any time, and against his inclination, to become either a criminal, in the eyes of the law, in being an "accessory after the fact," or a betrayer in the eyes of a patient.

Dr. EUGENE P. BERNARDY said: No matter at what stage or period of pregnancy the operation for criminal abortion is performed, it is murder. I know many will differ with me; the theologian and lawyer, more especially the layman. With what insignificance the idea of animate existence of the fetus in its early stages is held by them, we, as physicians, know—from the poor, ignorant, hard-working women in our courts and alleys, to whom another child means more care and harder work, to our society woman of the highest mental attainments, to whom a child is a bother in the way of her social duties. Women who would not cause the least unnecessary pain to be inflicted upon any human being or beast will, without the slightest hesitation or shame, ask that they be relieved of their (to them) troublesome burden, and, when refused, are surprised and become indignant, and reply: "Why, it is only a month old, and it certainly is not alive." If not alive, could it continue its growth, until eventually, from the seemingly microscopic inert mass, springs forth that wonderful creation—man? I ask again, Could a dead mass perform such an act? To grow, we must be animate; to be animate, we must have vitality. Life means a mate. At what time of pregnancy does this mystical union of the animal and spiritual natures of the human being occur? At the moment of conception, quickening, or birth? On this point theologians are divided. Many believe that the soul enters the body at the moment of quickening, and previous to that moment the fetus was soulless. Others believe that the soul is imparted to the child at the moment of its birth. I can not believe that God performs such imperfect work. I believe that the embryonic mass, surrounded by the

decidua, vera, and reflexa, has as much a soul as the child on the day of its birth, and on this conviction have I always practiced, looking upon the performance of a criminal abortion as being nothing less than murder.

Quickening is a mere circumstance in the physiological history of the fetus. It is uncertain in its periods, sometimes making itself sensible at three months, at other times four or five months, and in a large percentage of cases not at all. Many women have been delivered of children that have never quickened. Are these children to be considered as soulless?

On this very point were laws made in England under George III, in 1803, when it was ordained that the procuring of an abortion of a female *not quick* with child is felony, to be punished by fine, imprisonment, or exposure in the pillory, or that the criminal may be publicly or privately whipped, or transported beyond the sea for any term not exceeding fourteen years. The same act also declares that to procure abortion after quickening is murder, to be punishable with death. This law has of recent years been somewhat modified, and at present the law in England is that the procuring of an abortion at any period of pregnancy is a felony, to be punished by transportation for fifteen years or for life, or by imprisonment for three years.

The laws with regard to the punishment for this crime vary in the different countries, some imposing punishment more or less severe, according to the stage of pregnancy. The laws of Pennsylvania look upon the act as criminal in all its stages. On the trial of a murderer for performing a criminal abortion which resulted in the death of the mother, the judge, in charging the jury, declared that "at common law the crime is murder. Every act of procuring an abortion is murder, whether the person perpetrating the crime intended to kill the woman or merely feloniously to destroy the fruit of her womb." The procuring of an abortion is "a base and unmanly act"; it is a crime against the natural feelings of man, against the welfare and safety of woman, against the peace and prosperity of society, and against the Divine command, "Thou shalt not kill." It is murder.

Mr. PORTER said: I have not had an opportunity of reading the bill to which reference has been made. I am not here to oppose it; but I would caution the medical profession to think twice, or at least once, before it indorses it. The adoption of such a law amounts to this: that when you are attending a case of this kind, where death seems to be approaching, you must metamorphose yourself, change from the medical practitioner to the practiced detective, or run to a public officer, in order that the dying declaration may be obtained from one who has intrusted to your care body, health, and even that which is more sacred—the secret of her vanished honor. I throw this out as a suggestion. I should like to see the act before I say anything directly concerning it.

The district attorney has dwelt upon the duty of the physician in regard to reporting these cases. I have listened to hear what punishment is to be inflicted for silence, and I have listened in vain. Is silence criminal? God forbid! It is golden. There is in the criminal code no penalty for silence, impelled by a sense of honor, in such cases.

Mr. GRAHAM said: I would suggest to my friend that there is such a thing as misprision of felony or the concealment of a felony. There is a duty upon the citizen to disclose a felony that comes to his knowledge. The question is one of abstract duty; sentiment can not overcome it. I have not discussed the question whether the lawyer and physician should be put on the same basis. The present position of the physician under the law is different from that of the lawyer. The law has said that the lawyer's relation with his client is confidential, while



the physician is not protected. So long as this is the case, the duty of the physician to report a felony is absolute.

Mr. PORTER said: When we talk about the right of the lawyer to keep silence it means that if, on the witness stand, he is asked a question, he may decline to reply on the ground that the communication was confidential from a client. If the physician, on the stand, declines to reply, the Court may punish him. This, however, is totally different from saying that a physician, *not* on the witness stand, who is the repository of a secret, is bound to divulge it. Even if he knows of the crime as a citizen, there may be strong grounds of justification in withholding such knowledge, but when the knowledge is gained through the professional relation, if you can discriminate in good morals between the rights of the lawyer and those of the physician, I can not.

### Book Notices.

*The Diseases and Deformities of the Fœtus: an Attempt toward a System of Antenatal Pathology.* By J. W. BALLANTYNE, M. D., F. R. C. P., F. R. S. E., Lecturer on Diseases of Infancy and Childhood, Minto House School of Medicine, Edinburgh, etc. With Plate and other Illustrations. Volume I. Edinburgh: Oliver & Boyd, 1892. Pp. xiii-252. [Price, 10s. 6d.]

THE author has taken up the consideration of a subject that, while of considerable scientific interest, is likely to be regarded as of slight practical importance, because it is not possible to make a diagnosis of a disease of a *fœtus in utero*, and it is consequently impossible to adopt any method of treatment. It is for this reason more than any other that the nomenclature of fetal maladies is, with few exceptions, symptomatological; and, if it is almost impossible, as the author says, to distinguish fetal dropsy due to anomalies of the blood or lymphatic system from that produced by cardiac or renal disease, it is not difficult to understand the reason for the retention of the symptomatological term. We fully agree with the author that it is impossible to predict what results may flow from discoveries in this field of research, though we do not look forward to an early arrangement of a system of prophylactic and curative antenatal therapeutics that will abolish fetal and congenital disease altogether.

It seems that in this method of approaching his topic the author has been enthusiastic rather than visionary, being desirous of collecting and arranging his scientific facts and, with these in his possession, to turn them to practical use. He has prepared a careful synopsis of the methods of investigation that should be employed in studying fetal maladies, and summarizes a scheme of case-taking that would, if adopted, serve to enhance our knowledge of this subject.

There is an interesting historical sketch of the diseases of the fœtus as observed or recorded among primitive peoples, the earliest civilizations, those of the Greeks and the Romans, as well as in the middle ages and during the sixteenth, seventeenth, eighteenth, and nineteenth centuries.

The various classifications of diseases of the fœtus that have been published are presented for consideration, and the author calls attention to the fact that neither the etiological, nor the pathological, nor the systemic, nor the regional method has been altogether satisfactory. A scheme of classification that should combine these different plans would, he says, be most desirable. The scheme that he presents seems satisfactory, in-

cluding, as major headings, the subjects of—(1) idiopathic diseases; (2) transmitted diseases; (3) traumatic morbid states; (4) toxicological conditions; (5) death of the fœtus and post-mortem appearances.

The first disease considered in this volume is general dropsy of the fœtus, the varieties of which and the frequency with which they occur being mentioned, many cases and specimens being described, and the conclusion being reached that while in some cases of the disease there has existed an adequate cause in the fœtus itself, in most instances it has been due to a chain of factors having a cachectic state of the mother at one end and a blood disease of the fœtus at the other, with a morbid state of the uterine mucosa and placenta intervening. The author states that it is well-nigh impossible to diagnosticate the disease during pregnancy, and the treatment is one resting upon an unknown condition due to an unknown cause. All these features of uncertainty of diagnosis, etiology, and treatment are involved in the subject of general dropsy in the twin fœtus, as well as in that of general cystic elephantiasis of the fœtus; and a study of these two conditions, as observed in the lower animals, throws little light on the questions involved. There is a chapter on general fetal obesity with dropsy, based on a specimen observed by the author.

It is the author's intention to present the subjects of the remaining idiopathic and some of the transmitted morbid states of the fœtus in a second volume, and to complete the consideration of the subject in a third volume.

The increasing interest in the subject of embryology makes this volume timely, and in no single work is it possible for any one studying this subject to obtain the information presented by Dr. Ballantyne. We trust the reception accorded the volume will be commensurate with the earnest work that has been given to its preparation.

*Manual of Chemistry.* A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book especially adapted for Students of Pharmacy and Medicine. By W. SIMON, Ph. D., M. D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Professor of Chemistry and Analytical Chemistry in the Maryland College of Pharmacy, Baltimore. Third Edition, thoroughly revised. With Forty-four Illustrations and Seven Colored Plates, representing Fifty-six Chemical Reactions. Philadelphia: Lea Brothers & Co., 1891. Pp. 479.

It will probably be unnecessary to recall the distinctive traits of a work the third edition of which can not fail to increase the popularity so deservedly enjoyed by the first two, but as there may be among our readers some who, taking up chemistry for the first time, are unacquainted with the literature of the subject and will be glad to learn why this particular treatise should be preferred to so many others, we take pleasure in enumerating some of its many qualities. Although the volume is not large and the type is, there is an unusual amount of material to be found between its covers, thanks to the co-ordinated form in which it is presented. The seven divisions of the work are in a gradual progression, so that each conquered difficulty aids in the comprehension of the successive one, and a fundamental grasp of the whole subject can be obtained. Physical principles are treated of before the chemical ones, inorganic substances before the organic, concrete and easily intelligible forms before the complex grouping of the hydrocarbons, etc. As an assistance in the laboratory, a description of many experiments is given, and whenever a color reaction takes place an accompanying plate portrays its nature. Annexed to each chapter are many clearly put questions, which

will necessarily define the limits of the student's acquirements. The numerous illustrations, the excellent typographical work, all combine to make the work pre-eminently a good one and worthy of its continued success.

*A Manual of Physics:* being an Introduction to the Study of Physical Science. Designed for the use of University Students. By WILLIAM PEDDIE, D. Sc., F. R. S. E., Assistant to the Professor of Natural Philosophy in the University of Edinburgh. New York: G. P. Putnam's Sons (London: Baillière, Tindall, & Cox), 1892. Pp. xii-501.

The author of this volume has placed his work among the most valuable of college text-books by his clear and thorough treatment of the subject, which should enable the student to acquire such a mastery of the principles as to materially facilitate efforts made in any of the branches of technology.

*The International Medical Annual and Practitioner's Index.* A Work of Reference for Medical Practitioners. By Various Authors. 1893. Eleventh Year. New York: E. B. Treat. Pp. ix-626.

IN our issue of April 15th we gave extended notice of the *Medical Annual* for 1893, and called attention to its valuable features and many advantages. It only remains for us to say that the *International Medical Annual* is the American edition of this work, and that its contents and arrangement are the same as those of its English predecessor. The very favorable impression produced by the *Medical Annual* for 1893 therefore applies to the *International Medical Annual* for 1893 as well.

#### BOOKS, ETC., RECEIVED.

Investigations into the Nature, Causation, and Prevention of Texas or Southern Cattle Fever, made under the Direction of Dr. D. E. Salmon, Chief of the Bureau of Animal Industry. By Theobald Smith, Ph. B., M. D., and F. L. Kilborne, B. Agr., B. V. S. Published by Authority of the Secretary of Agriculture. Washington: Government Printing Office, 1893. Pp. x-11 to 301.

*Manual of Chemistry.* A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for Students of Medicine and Pharmacy. By W. Simon, Ph. D., M. D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, etc., Baltimore, Md. Fourth Edition, thoroughly revised. With Forty-four Illustrations and Seven Colored Plates, representing Fifty-six Chemical Reactions. Philadelphia: Lea Brothers & Co., 1893. Pp. xiv-17 to 493. [Price, \$3.25.]

Clinical Lectures on Abdominal Hernia, chiefly in Relation to Treatment, including the Radical Cure. By William H. Bennett, F. R. C. S., Surgeon to St. George's Hospital, etc. With Twelve Diagrams. London and New York: Longmans, Green, & Co., 1893. Pp. ix-225. [Price, \$2.50.]

Diseases of the Eye. A Practical Treatise for Students of Ophthalmology. By George A. Berry, M. B., F. R. C. S. Edin., Ophthalmic Surgeon, Edinburgh Royal Infirmary, etc. Second Edition, revised and enlarged. With Colored Illustrations from Original Drawings. Philadelphia: Lea Brothers & Co., 1893. Pp. xxii-727.

Case of Suprapubic Cystotomy performed to secure Continuous Drainage of the Bladder. By Cephas L. Bard, M. D., Ventura, California. [Reprinted from the *Southern California Practitioner*.]

Two Cases illustrating the Therapeutic Uses of the Nitrites. By Solomon Solis-Cohen, M. D. [Reprinted from the *Philadelphia Hospital Reports*.]

Hospitals, their Work and their Obligations. The Valedictory Address delivered at the Commencement Exercises of the Miami Medical College, Cincinnati, March 30, 1893. By N. P. Dandridge, M. D. Cincinnati: Robert Clarke & Co., 1893. Pp. 5 to 23. [Price, 25 cents.]

A Case of Akromegaly. By Solomon Solis-Cohen, M. D. [Reprinted from the *Medical News*.]

A Study of Seventeen Cases of Empyema. By James P. Warbasse, M. D., of Brooklyn. [Reprinted from the *Annals of Surgery*.]

Sixth Annual Report of St. Margaret's Hospital, of Kansas City, Kansas. For the Year ending December 31, 1892.

Sulla origine dei corpuscoli del sangue. Ricerche del Dott. Vincenzo Allara. Milano: C. chiesa e F. Guindani, 1893. Pp. 155.

The One Hundred and Twenty-second Annual Report of the State of the New York Hospital and Bloomingdale Asylum.

### Miscellany.

The American Gynecological Society will hold its eighteenth annual meeting in Philadelphia, in the building of the College of Physicians, on Tuesday, Wednesday, and Thursday, the 16th, 17th, and 18th inst., under the presidency of Dr. Theophilus Parvin, of Philadelphia. The announcement includes the following titles:

An Address of Welcome, by the president; Abdominal Fistula after Celiotomy; its Prevention and Treatment, by Dr. Paul F. Mundé, of New York; A New Operation for Uterine Fibroids, with Report of Cases, by Dr. Franklin H. Martin, of Chicago; A Further Report upon Supravaginal Hysterectomy by the New Method, by Dr. B. F. Baer, of Philadelphia; Two Cases of Supravaginal Hysterectomy by Baer's Method, by Dr. Archibald MacLaren, of St. Paul; Congenital Dilatation of the Urethra, by Dr. William H. Baker, of Boston; Operations upon the Uterine Appendages with a View to preserving the Functions of Menstruation and Ovulation, by Dr. William H. Polk, of New York; The Treatment of Septicæmia with Oxygen, by Dr. Andrew F. Currier, of New York; Puerperal Eclampsia, the Experience of the Boston Lying-in Hospital during the last Seven Years, by Dr. Charles M. Green, of Boston; A Case of Inversion of the Uterus, by Dr. Edward P. Davis, of Philadelphia; Ovarian Tumors obstructing Pregnancy, by Dr. A. F. A. King, of Washington; the president's address; Membranous Dysmenorrhœa, by Dr. Thaddeus A. Reamy, of Cincinnati; The Operative Treatment of Uterine Fibro-mycosata, by Dr. Hermann J. Boldt, of New York; The Dangers and Complications of Uterine Fibroids, by Dr. S. C. Gordon, of Portland, Maine; Internal Crossing of the Ovary, by Dr. Henry C. Coe, of New York; Hystero-epilepsy; Report of Seven Cases cured by Celiotomy, by Dr. H. Marion Sims, of New York; The Operative Treatment of Prolapsus Uteri et Vagina, by Dr. George M. Edebohls, of New York; The Origin of Dermoid Tumors of the Ovary, by Dr. Arthur W. Johnstone, of Cincinnati; The Pathology and Treatment of Injuries of the Pelvic Floor, by Dr. Alexander J. C. Skene, of Brooklyn; The Elastic Ligature *versus* the Wire Serre-nœud in Supravaginal Hysterectomy, by Dr. R. Stansbury Sutton, of Pittsburgh; The Surgical Treatment of Abortion, by Dr. Egbert H. Grandin, of New York; Clinical Report of Cases of Pyosalpinx treated by Uterine Drainage, with Subsequent Conception, by Dr. Robert A. Murray, of New York; Vaginal Enterocœle in Pregnancy and Labor, by Dr. Barton C. Hirst, of Philadelphia; Calcified Tumors of the Ovary, by Dr. J. Whitridge Williams, of Baltimore; The Results of Aseptic Celiotomy, by Dr. William H. Wathen, of Louisville; The Uterine Curette, by Dr. William H. Parish, of Philadelphia; Retention of Menstrual Fluid in Cases of Bicornate Uterus, by Dr. Charles J. Cullingworth, of London, Eng.; Some Elements of Success in Celiotomy, by Dr. A. Laphorn Smith, of Montreal, Can.; Practical Methods in Dress Reform, by Dr. Robert L. Dickinson, of Brooklyn; In Memoriam—Dr. A. Reeves Jackson, by Dr.

Henry T. Byford, of Chicago; In Memoriam—Dr. Charles P. Strong, by Dr. Egbert H. Grandin, of New York.

**The American Electro-therapeutic Association.**—The next annual meeting will be held in Chicago on September 12th, 13th, and 14th.

At a meeting of the executive council held on March 2d the following resolution was adopted:

"Resolved, That the secretary be instructed to prepare a circular to send to fellows of the association, to members of the medical profession, to electrical experts, and to manufacturers of electrical appliances for medical work, containing titles of all the committees, the members serving on them, with their addresses, and the matter prepared for discussion and investigation by each committee.

"And that manufacturers be asked to communicate with the members of the different committees, if they desire to have their instruments examined and tested, stating their claims and merits.

"And that physicians, electrical experts, and manufacturers be asked to co-operate in making suggestions and in relating their experience and preference for instruments, with reasons and data.

"And to mail this circular to all members of the association, to manufacturers, to medical journals, and to others who are known to use electricity extensively, asking for a speedy reply either to the secretary or to the members of the respective committee whom it concerns."

In accordance with this resolution the following has been prepared:

**COMMITTEE ON STANDARD COILS:** Dr. W. J. Morton, 19 East Twenty-eighth Street, New York; Dr. A. H. Goelet, 351 West Fifty-seventh Street, New York; Dr. W. F. Hutchinson, Providence, R. I.; Dr. G. Betton Massey, 212 South Fifteenth Street, Philadelphia; Dr. A. E. Kennelly, Chief Electrician, Edison Laboratory, Orange, N. J.

*Points to be considered:* I. Portability. II. Practical mechanism of machines as adapted to physicians' use. III. Range and rate of vibration. IV. Electro-motive force and its range in relation to resistances to be overcome. V. The resistance of the coil producing these electro-motive forces. VI. The battery power required for individual coils. VII. Shape of the generated wave of electro-motive force.

**COMMITTEE ON STANDARD METERS:** Dr. Margaret A. Cleaves, 68 Madison Avenue, New York; Dr. H. E. Hayd, 78 Niagara Street, Buffalo; Dr. Wellington Adams, 2741 Olive Street, St. Louis; Dr. W. F. Robinson, 214 State Street, Albany.

*Points to be considered:* I. A good meter should have a clear, legible scale, fairly uniform over the range, and not crowded at different points. II. It should be capable of being noted or observed at a distance. III. The resistance should be low. IV. There should be no tendency to overheat with the strongest current employed. V. It would be advantageous to avoid a shunt, if one milliampère can be read throughout the scale. VI. The instrument should be capable of indicating in all positions. VII. Any instrument whose indications depend directly upon the local magnetic force is objectionable, for the reason that its indications are liable to be affected by iron in the vicinity. VIII. The suspended system should require as little attention as possible, either for adjustment or shipment. IX. It is an advantage for the instrument to indicate with either direction of the current. X. Portability. XI. Liability to fracture.

**COMMITTEE ON STANDARD ELECTRO-STATIC OR INFLUENCE MACHINES:** Dr. W. J. Morton, 19 East Twenty-eighth Street, New York; Dr. J. H. Kellogg, Battle Creek, Mich.; Dr. G. Betton Massey, 212 South Fifteenth Street, Philadelphia; Dr. Margaret A. Cleaves, 68 Madison Avenue, New York.

*Points to be considered:* I. Electro-static machine best adapted to medical work, to be determined by its "output." Its output to be determined as follows: (a) At, respectively, 100 and at 150 revolutions per minute. (b) With two Leyden jars, each of whose outer metallic surfaces has the area of  $4\frac{1}{2} \times 1\frac{1}{2}$  inches =  $5\frac{1}{2}$  square inches. (c) With discharging-rods having ball terminals one inch in diameter and arranged respectively six inches and ten inches apart. (d) Give the number of sparks per minute which will pass between the discharging-rods. II. Give the greatest maximum length of spark with machine arranged as in Section I, except as to distance apart of the discharging-rods. III. Give the maximum length of the brush discharge between the discharging-rods with machine arranged as in Section I, except that

no Leyden jars are used. IV. Give the maximum length of spark that may be obtained by a brass-ball electrode, two inches in diameter, from a person's back, seated in the usual manner upon an insulated platform—the platform connected to one prime conductor of the machine, the other being connected to the ground. (a) With above Leyden jars. (b) Without Leyden jars. V. Kind of electro-static machine best adapted to medical work, whether a Holtz, Wimshurst, Toepler, Voss, Carré, Lewandowski, Toepler-Holtz, Wimshurst-Holtz, or machine not here named, provided the type as constructed successfully fulfills requirements outlined in Section I. VI. Does the machine preferred easily reverse its charge? Does it maintain its charge successfully? VII. Facility and means of charging machine under all atmospheric conditions. VIII. Can a good meter to measure the output of the machine be suggested? IX. Mechanical construction of machine. (a) Ease of actuating machine by motive power. (b) Durability of the mechanism causing the revolution of its plates. (c) Durability of its construction. (d) Is a glass case necessary? X. The best means for drying the air within an inclosing glass case. XI. The best means for absorbing the ozone and nitrogen compounds formed within a glass case. XII. Is it not advisable to decide in a general way that no machine, the diameter of whose revolving discs is less than twenty-six inches, and the number of whose discs is less than six, should be recommended by this committee for medical work?

**COMMITTEE ON CONSTANT-CURRENT GENERATORS AND CONTROLLERS:** Dr. W. J. Herdman, 48 East Huron Street, Ann Arbor, Mich., Rheostats and Dynamo Current-controllers; Dr. Robert Newman, 68 West Thirty-sixth Street, New York, Primary Stationary Batteries; Dr. Frederick Peterson, 201 West Fifty-fourth Street, New York, Secondary Batteries and Primary Portable Batteries.

*Points to be considered:* I. Primary batteries. Express preference and reasons therefor for a battery, voltage, modification, and control of current-strength, current-generator, etc. II. As to cells and secondary batteries. What are the defects and inconveniences? What the advantages over other forms? What the ampère hours, what the constancy, voltage, and action? III. As to dynamo currents. What the nature of the current, what its voltage, how is it modified by the form of controller under consideration? IV. Report new forms of batteries and improvements, with claims as to superiority over those now in use. V. Rheostats. Tests, various forms and devices to modify and control currents; difference in effect produced by each, mechanically, chemically, or physiologically.

**COMMITTEE ON STANDARD ELECTRODES:** Dr. A. Laphorn Smith, 248 Bishop Street, Montreal, Canada; Dr. R. J. Nunn, 119 York Street, Savannah, Ga.; Dr. Charles R. Dickson, 263 Victoria Street, Toronto, Ontario.

*Points to be considered:* I. Inactive electrodes. 1. What is the best material in general for the ground-work of the electrode and what in special cases? 2. How may it best be connected with its rheophore? 3. What is the best material to cover its conducting surface? 4. When necessary, how may it best be insulated? 5. In what way may it be kept warm and moist when not in use, should this be necessary? 6. What should be accepted as standard sizes and shapes, and how best designated? 7. What other points require to be considered? II. Active electrodes. 1. What is the best material in general and in special for the ground-work of the electrode? (a) When used at the positive pole? (b) When used at the negative pole? 2. How may it best be connected with its rheophore? 3. What is the best material to cover its conducting surface when necessary, in general and special? 4. How may it be insulated when necessary? 5. What is the best form of construction where flexibility is required for tortuous canals? 6. What shall be considered the standard shapes and sizes; what scale shall be adhered to in considering the latter; how may their surface area be estimated when they are of irregular shape? 7. When designated by numerals as to size and surface, how may such best be expressed when stamped or otherwise marked on them? 8. How may simplicity of construction be best obtained and cost of manufacture reduced without impairing efficiency? 9. How may facility of cleansing and rendering aseptic best be achieved? 10. What other points to be considered? III. Active and inactive electrodes. 1. Are the terms "active" and "inactive" the best standard terms we can em-



ply? 2. In the case of both active and inactive electrodes, should not the threads of ALL screws used in construction as a means of attachment, also all plugs and sockets, etc., be of a standard gauge, that electrodes might be used with attachments of all makes, etc., and to facilitate repair?

Replies may be sent to Margaret A. Cleaves, M. D., secretary, 68 Madison Avenue, New York.

**Organic Extracts and their Therapeutic Effects.**—In an article with this title the *Indian Medico-chirurgical Review*, of Bombay, quotes from an article by Dr. William A. Hammond recently published in this journal, and adds:

"We have quoted the *ipsisima verba* of the author in order to enable our readers the better to understand the system on which the treatment is based. Acting upon these bases, Dr. Hammond experimented at first with the fresh juice of the organs; but, as its use was not unattended with danger, he modified his experiments and used extracts made by a somewhat elaborate process. He describes the process of making *cerebrine* from the brain of the ox, and the same process is applicable to making extracts from the organs as the heart, liver, kidneys, testicles, etc. Five minims of the extract diluted with an equal quantity of distilled water constitutes a hypodermic dose. The local result of the hypodermic injection is a slight smarting at the time of injection, followed by itching and erythema. The physiological effects produced by a single injection of cerebrine are acceleration of the pulse with feeling of fullness and distention in the head, exhilaration of spirits, increased urinary excretion, augmentation of the expulsive force of the bladder and peristaltic action of the intestines, increase in muscular strength and endurance, increased power of vision in elderly people, and increased appetite and digestive power. Injections of cerebrine have been used by the author in neurasthenia, insomnia, migraine, hysteria, epilepsy, etc., and he has also obtained excellent results from treating appropriate cases by the extract of the testicles of the bull and also that of the pancreas of the ox.

"Dr. Hammond controverts the assertion of some that there is no difference between the action of medicines taken into the stomach and injected into the blood by hypodermic injections and says that all those substances that are acted upon (and they are almost all) by the gastric juice and then absorbed into the system, become altered and hence their effects on the system could not be the same. He finds, however, that if some of the organic extracts are put upon the tongue in double the dose used for injection and allowed to remain in the mouth without being swallowed, they are absorbed and exert a slower but still decided effect.

"Dr. Hammond believes that the theory on which he has based his treatment is physiological and plausible, and he thinks it probable that the beneficial effects observed may be due to a ferment resulting from a mixture of boric acid, alcohol, and glycerin, which may have the power of restoring to the weakened brain or other viscus the lost or impaired power of assimilation.

"This leads us to the consideration of the treatment of myxœdema, which fits in to a certain extent with Dr. Hammond's theory, as well as that of diabetes by pancreatic juice.

"We join issue with our contemporary the *Lancet* when it says that the use of cerebrine, nephrine, etc., suggests as if the limits of rational medicine were being overstepped, and that there were very few diseases where the pathological entity was an absence of a particular organ as in myxœdema. But if the treatment of myxœdema and diabetes is analyzed in the light of the theory propounded by Dr. Hammond, it seems to be nothing more than an application of the physiological principles laid down by him. Although the organs may not be totally absent, as indeed they are always not, still they are physiologically so, as their normal secretions become altered or defective on account of disease. Hence the use of these extracts supplements the deficiency to a certain extent of their products and thus allows of normal physiological processes being carried on in the system just as if the organs were sound and not diseased. In fact, Dr. Hector Mackenzie gives some such explanation of the action of pancreatic juice in diabetes. This, then, must be the rational explanation of the phenomenal success of the thyroid treatment, and as such it marks a distinct advance in rational therapeutics. There are yet several points to be cleared up as to why the

internal administration of the dried or raw thyroid or the dry extract should give better results than grafting or hypodermic injection, and to Dr. Hammond belongs the credit of formulating a rational working hypothesis for the new treatment."

**Mineral Waters.**—An article entitled *Mineral Waters, Crude and Refined*, by Dr. H. D. Didama, of Syracuse, N. Y., published in the *Journal of the American Medical Association* for April 22d, concludes as follows:

"Vaunted springs which, like the Poland and others, contain hardly an appreciable amount of any mineral (the Poland having a total of about three grains to the gallon, two thirds of this being lime and silica), may still be beneficial if used in the enormously large quantities directed and urged by their proprietors.

"Their location may be where the air is invigorating and germless; where the weary invalid is liberated from the care of business, relieved to some extent of the deceitfulness—certainly of the plethora—of riches, and flushed out every few hours with an amount of fluid for which he never dreamed he had a capacity.

"Divesting himself of prejudice, he would probably find that an equal quantity of pure water at home would (so far as the water is concerned) be equally beneficial. And (it is well to consider) the pecuniary condition of the average patient will not allow the luxury of a distant journey and a board bill of five dollars a day.

"The notion that the natural heat of the earth imparts to water any virtue which could not be derived from solar or stove heat has no scientific or experimental foundation. Natrium iodidum is known to be a potent weapon in the armamentarium of the Hot Springs medicine man.

"The writer has never sent a patient to the National Calidarium, but he has treated with satisfaction several who have returned unbefitted from that popular but somewhat compromising resort."

**The late Dr. Charles D. Scudder.**—At the last annual meeting of the medical board of the New York Lying-in Asylum the following resolution was adopted:

That, in the death of Dr. Charles D. Scudder, the board has lost one of its most earnest, enthusiastic, and valued members. Singularly qualified for the great task to which his rare gifts were consecrated—the amelioration of the sufferings of his fellow-beings—he devoted himself to it with an unselfishness of purpose which won for him the deepest admiration of his associates. He was a profound student, an accomplished physician, a sincere friend. His loss is irreparable.

*Resolved*, That a copy of this resolution be sent to the family of Dr. Scudder, to the medical journals of this city, and to the board of managers of the Lying-in Asylum, and that it be inscribed on the records of the medical board.

[Signed] L. L. SEAMAN, M. D., *Chairman*.

**The American Pediatric Society** will hold its fifth annual meeting at Cranston's Hotel, West Point, N. Y., on May 24th, 25th, and 26th, under the presidency of Dr. A. D. Blackader, of Montreal, besides whose annual address the preliminary programme announces the following: This Year's Failures in Diphtheria, by Dr. M. P. Hatfield, of Chicago; The Value of Peroxide of Hydrogen in Diphtheria, by Dr. J. Lewis Smith, of New York; Brief Notes on the Use of Antipyretic Drugs in the Febrile Affections of Children, by Dr. J. P. Crozier Griffith, of Philadelphia; A Case of Laryngeal Diphtheria, by Dr. W. D. Booker, of Baltimore; Concerning the Care of the Throat and Ears of Children, by Dr. W. P. Northrup, of New York; Intestinal Fever, by Dr. A. Jacobi, of New York; Report on a Revisionary Nomenclature of Gastro-intestinal Diseases, by Dr. T. M. Rotch, of Boston; Proctitis in Early Infancy, by Dr. Louis Starr, of Philadelphia; Studies of Milk from Large Western Dairies, by Dr. J. M. Keating, of Colorado Springs; Pulmonary Tuberculosis, by Dr. William Osler, of Baltimore; Report on the Nomenclature of Diseases of the Mouth, by Dr. T. M. Rotch, of Boston; A Case of False Meningocele, by Dr. Irving M. Snow, of Buffalo; Discussion on the Treatment of Pertussis (Local, by Dr. J. P. Crozier Griffith; Constitutional, by Dr. F. Forchheimer; Climatic, by Dr. William Osler; Complications, by Dr. Henry D. Chapin); Discussion on the Treatment of Constipation in Early Infancy

(Dietetic, by Dr. L. Emmett Holt; Medicinal, by Dr. C. P. Putnam; Local, by Dr. Leroy M. Yale); The Etiology of Incontinence of Urine, by Dr. B. K. Rachford, of Newport, Ky.; Meningitis complicating Pneumonia, by Dr. L. Emmett Holt, of New York; a paper (subject to be announced), by Dr. Henry D. Chapin, of New York; The Treatment of Certain Forms of Anemia in Children, by Dr. F. Forchheimer, of Cincinnati; Some Points in Connection with the Etiology of Rhachitis, by Dr. J. Lewis Smith, of New York; The Treatment of Rhachitis with the Lactophosphate of Lime, by Dr. J. Henry Fruitinght, of New York; A Report of Five Cases of Tetany, by Dr. J. P. Crozier Griffith, of Philadelphia; Acute Scleroderma, by Dr. William Osler and Dr. Backer, of Baltimore; A Case of Erysipelas of the Scalp and Face in an Infant, aged Six Weeks, by Dr. Samuel S. Adams, of Washington; Description of a New Incubator, by Dr. T. M. Rotch, of Boston; A Case, by Dr. W. P. Northrup, of New York; A Gastric Neurosis in Childhood, by Dr. Irving M. Snow, of Buffalo.

**Newspaper Reports as to Deaths from Ether.**—With some reservation as to the cause of death conjectured by the *Medical News*, we cordially indorse the following, that appeared in that journal for April 29th: "Few misfortunes are more distressing to a surgeon than the death of a patient on the operating-table. Notwithstanding every precaution, this will sometimes happen, from circumstances not to be foreseen or controlled. It has taken place in the practice of some of the most eminent, skillful, and careful men that ever held a knife. When the patient is well known in the community such a mishap becomes widely reported, and is likely to be damaging to the reputation of the surgeon, even although his fellow-practitioners are fully aware, and freely testify, that he can not in any way be held responsible for the unfortunate result.

"In the case of the late Colonel Shepard the attendants were men of deservedly high reputation, and there is absolutely no blame whatever to be attached to them. From the reports published in the newspapers, it would seem that the cause assigned for the death was oedema of the lungs. In the absence of evidence of this from an autopsy, we should be inclined rather to suspect some lesion of the cerebral respiratory centers, either occurring primarily as the effect of ether inhalation, or previously existing, and only aggravated thereby. But whatever may have been the pathologic condition, we see no evidence of want of care or of skill in the management of the case.

"Such, we think, will be the unanimous verdict of the profession. It is therefore with indignation that we find the following paragraph going the rounds of the newspapers:

"Dwight A. Lawrence, the New York politician, has recently undergone an operation similar to the one the doctors tried to perform on Colonel Shepard. 'I was quite nervous about the operation,' he said. 'Colonel Shepard was in my mind, as his case occurred a week before the time set for mine. However, I resolved to stick it out. I went through the ordeal all right, and now feel like a new man. I am satisfied that if Colonel Shepard had had more careful treatment he would be alive to-day.'"

"To the lay mind this oracular statement of a layman may have weight, to the prejudice of those who had charge of Colonel Shepard's case. Very possibly no such remark was ever made; it may have emanated from the fertile brain of a reporter. Yet there it is, published; and we feel bound to protest against such a gratuitous reflection upon the professional conduct of our brethren. We do not know whether under the law of libel they would have any chance of redress by legal process. The damage sustained by them would be difficult to estimate, and no doubt there would be plenty of technicalities under cover of which the slanderer would escape responsibility. But we think the medical press and profession should extend their moral support and their sympathy to Dr. McBurney and his associates."

**The Shelby County, Indiana, Medical Society.**—The programme for the next meeting, on Monday, the 8th inst., includes a paper on Typhoid Fever, by Dr. H. M. Connelly, and one on Cholera Infantum, by Dr. Francis Bowly.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 4th inst., held under the auspices of

the Section in Obstetrics and Gynaecology, was a discussion on Symphysectomy, to be opened by Dr. Henry J. Garrigue and continued by Dr. Egbert H. Grandin, Dr. C. A. von Ramdohr, Dr. William M. Polk, Dr. Charles Jewett, Dr. Henry C. Coe, Dr. William T. Lusk, Dr. J. Clifton Edgar, and others.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 9th inst., Dr. E. Fuller will read a paper on Gonocystitis; Dr. R. Guitéras, a paper on Gonorrhoeal Rheumatism; and Dr. H. Klotz, one on The Occurrence of Syphilitic Tertiary Lesions the Result of Direct Local Infection, with Remarks on Syphilis as an Infectious Disease.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 15th inst., there will be a discussion on the subject of Dr. Noyes's paper, The Mode of Management of Partial Cataract; Dr. W. B. Marple will read a paper on The Pathology of Hypopyon Keratitis; and Dr. S. A. Payne will read one on Insufficiency of Ocular Muscles due to Errors of Refraction.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be elsewhere sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

Original Communications.

ON THE SELF-REGULATION  
OF THE BEAT OF THE HEART.\*

By S. J. MELTZER, M.D.

In a heart beating seventy-five times in a minute each cardiac cycle lasts eight tenths of a second. Of this time, three tenths of a second is taken up by the systole and the remaining five tenths is left to the diastole. Within the systole we may distinguish the period in which the ventricle contracts *ad maximum*, and the maintenance of this maximal contraction for some time before relaxation takes place. The time for this latter period may be estimated one tenth of a second. Upon the punctual keeping of these minute fractions of time depends the stability of the cardiac beats. By what a wonderful mechanism the heart must be governed!

What is this mechanism? What causes the muscle of the heart to contract, and what makes this contraction occur rhythmically? A skeletal muscle can be made to contract either by a stimulus artificially applied to the muscle or its motoric nerve, or by an impulse issued from the central nervous system. The plain muscle tissue can besides be brought to contraction by the contents of the cavities which they surround. The contractions of the muscle of the heart can not have their origin in impulses emanating from the central nervous system, since the heart continues to beat for some time after its isolation and removal from the body. But we may well think of the contents of the heart—the blood—as a sufficient cause for its contraction. The blood may stimulate the heart mechanically as well as chemically. We should then not only understand the cause of the contraction, but we should even have a sufficient explanation for the rhythm of the beats of the heart. The accumulation of blood in the heart, we may think, provokes its contraction; but the contraction, on the other hand, removes the blood, which means the removal of the cause for the contraction; therefore relaxation of the heart follows, and it remains relaxed until a sufficient quantity of blood is again accumulated in the cavity of the heart. The simplicity of this theory has indeed captivated the minds of nearly all the physiologists for a long period—a period beginning with Albert von Haller and ending with Johannes Müller. But the latter has done away with this theory by the bold remark that a perfectly bloodless heart continues to beat; the blood, therefore, can not be the cause of the beat. In the half century which passed since only very few could be found who seriously entertained the opinion that the blood is the stimulating cause for the contraction of the heart. The frog manometer, now nearly a quarter of a century in use, destroyed the last chances that were left for the theory. Through a considerable number of investigations accomplished by Ludwig, Kronecker, and their pupils with this instrument, it became evident that the blood and its gases

were important to the movements of the heart only as a condition, but not as a cause. The blood is the carrier of the nutrition for all the organs of the body, and as such it is indispensable for the maintenance of the movements of the heart, but it is not the cause of those movements.

Now, if it is not the blood, what else is the cause of the rhythmic movements of the heart? At present it seems to be the unanimous opinion that the cardiac beat is of automatic origin. This theory is as old as the beautiful word automatism itself. We find this theory put forward as far back as in the first edition of the classic Handbook of Physiology by Johannes Müller. I mention this fact especially as in those days no nerve cells or ganglia had yet been discovered in the heart. Now we have at our disposal Remak's, Bidder's, and others' ganglia or single nerve cells. With the discoveries of the several ganglia the before homeless automatism seemed to have obtained a suitable shelter. The nerve cells of the heart, so it was assumed, were similar to the nerve cells of the general nervous system. And there seems to be no doubt as to the right of the latter cells to exercise automatic powers. But at present we meet serious doubts as to the localization of the automatism of the heart in the nerve cells. The tip of the frog's ventricle—Bowditch's *Herzspitze*—and even a still greater part of the ventricle of the tortoise, are said to be free from nerve cells, and still those parts continue to beat regularly even after severing the connection with the rest of the ventricle. And recent investigations by Romberg and His have brought to light the interesting fact that at an early period of embryonic life the heart accomplishes its movements without the aid of the nervous elements. Therefore many investigators transfer the government of the heart to its muscular tissue. But, after all, the dispute refers only to the site of the automatic government, while nobody seems to doubt its presence and its right to rule. Permit me to ask, What does it signify when we say the heart beats automatically? We want to know what is the stimulus which makes the muscle of the heart contract, and why this contraction occurs rhythmically. To this we get the answer, The nerve cells or the muscle fibers of the heart possess the capacity to generate stimuli and to discharge the effects of them rhythmically. But this means, in other words, the heart beats rhythmically because it has the capacity to do so. Would it not be more to the point if we plainly confessed that we did not know the real cause of the beat of the heart? However, in the discussions upon the automatic movements of the heart we find certain statements which may produce the impression that after all we have succeeded in penetrating the mystery of the mechanism, at least as far as the rhythmicity of the beat is concerned. Let us now examine those statements.

Johannes Müller already attempted to explain the rhythmicity by supposing that two antagonistic forces are engaged in regulating the heart's beat—viz., the general nerve impulse striving to reach the muscle, and a certain resistance coming from the ganglionic parts of the sympathetic nerve. Such an antagonistic strife, Müller thinks, is capable of converting a constant stimulus into a rhythmic effect.

\* Read before the New York Neurological Society, May 2, 1893.



As an illustrative instance he refers to the rhythmic discharge of electric sparks from a machine with a constant electric source. The struggle between the electric current and the resistance of the air is, according to Müller, the cause of the rhythmic discharge. Müller confines his theory to the rhythm of the heart only; for certain reasons he abstains from applying it to the respiratory rhythm. Twenty years later I. Rosenthal devised another ingenious construction to exemplify the rhythmic working of two opposing forces. Into a vertical tube, the bottom of which is kept in place by a spring, water flows continually. When the water within the tube reaches a certain height the spring gets overpowered and a certain quantity of water leaves the tube at once; then the spring closes up until the water is again accumulated to the effectual height. In opposition to Müller, Rosenthal applies the theory of the opposing forces to the rhythm of the respiration. A few years later v. Bezold, following Rosenthal's steps, applied the said theory anew to the rhythm of the heart, only with a new illustrating example—the steam which is under constant pressure in the engine leaves it through the valve rhythmically. L. Hermann refers to another well-known instance: when gas is brought in a continual stream under water it escapes in bubbles. A. Fick and others speak, again, of how the constant electricity in a Leyden jar is converted into a periodical discharge of sparks. There would be no difficulty in adding some more similar instances, but I do not see how all these illustrations add anything new or any more strength to the original theory as it was first put forth by Johannes Müller, and which is, to repeat it briefly, as follows:

The automatic mechanism generates, nobody knows how, a continual stimulus, which has to overcome a certain resistance before reaching the muscle of the heart; the result of this struggle is a rhythmic contraction.

You all know that if two forces are opposing one another, in most cases the result is, according to the law of the parallelogram of two forces, not a rhythm, but a constant resultant. Now, if there are in the heart two opposing forces, why is the result a rhythm and not a steady tonic contraction? But, assuming even that the result of two opposing forces would always be a rhythm, can we maintain that we understand the mechanism of the rhythm of the heart better because there are instances showing the conversion of constant forces into rhythmic effects? If somebody who hears the rattle of your faradaic battery asks you for the explanation of the mechanism of the current interrupter, you would not disclose the nature of the mechanism in the least by answering: Such rhythmic rattle is a daily occurrence; hear the rattle of the sewing machine, the ticking of the watch, the rhythmic dripping of the loosely-closed faucet. He who knew the physical cause why the scanty water from the roof was not streaming, but rhythmically dripping, did not yet know how to invent a timepiece, and many a good watchmaker does not understand the ingenious mechanism of the self-interrupting hammer in the faradaic battery. Thus the knowledge of the facts that the electricity of a Leyden jar is discharged in sparks, that gas escapes from water in bubbles, and so

on, does not help us in the least to understand the special mechanism of the heart's rhythm.

Accordingly we must admit that we do not know what the stimulus is which makes the heart contract, and where and how this stimulus is generated; we also do not know why the heart, by virtue of the continuity of the stimulus, is not contracted tonically; and we have not the slightest knowledge of the mechanism which regulates the steady and stable rhythm. Then what do we know of the mechanism of the heart's beat? What knowledge do we gain of this mechanism by the pretentious allegation that it is of an automatic nature? Certainly none, and so I repeat that a simple confession of our ignorance would be more to the point.

To sum up our analysis briefly, the blood is not the cause of the heart's movements, and automatism is a transparent cover to hide our ignorance. Thus, after centuries of labor and research, we stand to-day with the same apparent helplessness as centuries ago before the puzzling problem, What makes the heart beat?

You see that a new attempt to solve our problem can not be considered as a luxury. And as the search for truth is everybody's right, I hope it will not be considered immodest if I venture now to lay before you my own conception of the mechanism under discussion. However, before entering into the details of my own theory, I wish to show that, in accordance with our present knowledge, our problem might appear even more complicated. We were used to the conception that a stimulus was necessary only for the production of a contraction, but not for the relaxation of a muscle; the relaxation was considered as a passive condition which appeared as soon as the cause for the contraction disappeared. Therefore the question concerning the beat of the heart could only be, What is the stimulus which produces the systole, and what interrupts the stimulus or its effects so as to allow the heart to relax? Now, it is nearly half a century since Eduard Weber discovered the far-reaching fact that by stimulation of the vagus the heart could be brought to rest in a diastolic state. Consequently, at least this relaxation of the heart is not a passive one, due to the disappearance of a stimulus, but certainly an active one, brought on by a stimulation of the vagus. The relaxation is therefore not always a passive condition. Now a new question must arise. Is the natural diastole really only a passive condition, or is it brought about in a similar way as the effect of the artificial stimulation of the vagus? In other words, should we not suppose that the normal diastole is an active state, an inhibitory phenomenon? It seems to me surprising that half a century should have passed without any one taking this possibility under serious consideration. Or can I have overlooked such an attempt?

Accordingly our problem is now complicated by new questions. Is the diastole also an active state, and, if so, what is the stimulus for the diastolic state? Is there a separate stimulus for the systole and for the diastole, or could both states be produced by one and the same stimulus?

My own answer to these questions would be, briefly stated, this: The diastole is indeed an active state—a state of inhibition produced by a direct stimulus; but both states,

systole and diastole, are brought about by one and the same stimulus. And now I shall ask your permission to bring before you a more comprehensive account of my view of the mechanism of the cardiac beat.

The heart harbors in some of its anatomical substrata two antagonistic functions—viz., the contractibility and the inhibitory function. If we were to recognize the muscular tissue as the ultimate carrier of the heart's mechanism, then I should simply say that the muscular fibres of the heart were capable of answering to a stimulus by contraction as well as by relaxation. And it will remain an open question if the muscle of the heart differs in the respect mentioned from the skeletal muscle, since there are abundant proofs of the presence of inhibitory phenomena in the skeletal muscle also. Here I may refer to the experiments of Biederman, Kaiser, Wedenski, and Piotrowski. My theory, however, is independent of the question of localization. I shall not object to have the antagonistic functions localized in separate ganglia or even in one and the same nerve cell. The nerve cells will then possess two opposing functions—one to bring the muscle fibers of the heart to contraction, and the other for the inhibition of the contraction. This assumption is, of course, not new. We have seen that most authors entertain the view that the heart is governed by two opposing forces. Then, again, we often find the assumption that there are a motoric and an inhibitory mechanism in the heart. My presupposed functions have the advantage inasmuch as they are less complicated; each function for itself does not form a mechanism; it is only a simple quality of some anatomical substratum of the heart. What I expressly wish to insist upon is that these functions belong to the heart itself and not to the endings of the peripheral nerves. The embryonic heart beats rhythmically even before the peripheral nerves join it. Thus I believe that the inhibition which appears after stimulating the vagus belongs not to this nerve or its endings, but to the inhibitory function of the heart which is specifically connected with the vagus. Both peripheral nerves are the pathways leading to each function separately. And it is only by those peripheral nerves that we may gain separate access to each of the functions. By any other stimulus which we may apply to the heart directly or otherwise we affect both functions simultaneously. By these stimuli we are therefore unable to study the peculiarities of each function. But since the two kinds of peripheral nerves leading to both functions of the heart are their separate pathways, we may attempt to study the functions by studying their corresponding nerves. And here we find highly interesting facts which are fitted to throw a bright light on the peculiarities of the antagonistic functions and on the mechanism of the rhythmic beat of the heart. To these facts, gentlemen, I now invite your special attention.

By the cardiac peripheral nerves I mean, of course, the pneumogastric and the accelerator nerves. By moderate stimulation of the vagus the beats of the heart are slackened and weakened; stronger stimulation brings the heart to a standstill in diastole. The effect of the stimulation does not appear instantaneously; there is always a latent period of about one fifth of a second between the stimulation and

the inhibitory effect. After cessation of stimulation the inhibitory effect does not disappear immediately, but rather continues for two or three seconds—in other words, the inhibitory after-effect of the stimulation of the vagus lasts from two to three seconds. By the accelerator nerve are meant cardiac nerve fibers which come from the sympathetic nerve and which have a different course in different animals. Isolated stimulation of these nerve fibers quickens and augments the beat of the heart. The latent period of the accelerator nerve lasts a few seconds, and still more pronounced is its after-effect; it continues for several minutes—i. e., for several minutes after the stimulation of the accelerator nerve has been stopped the heart continues to beat quicker and stronger. Thus we see that there is a marked difference between the pneumogastric and the accelerator nerves concerning the length and strength of their latent and after-effect periods. There are still other differences. For the excitation of the accelerator nerve a stronger stimulus is required than for the excitation of the cardiac vagus. Then the vagus exhausts sooner than the accelerator nerve. Both nerves show a different behavior in relation to the effects of temperature and some poisons. When both nerves—the pneumogastric and the accelerator—are stimulated simultaneously, we see during the stimulation only the inhibitory effect, and nearly to such a degree as if the accelerator nerve would not have been co-stimulated at all. The effect remains about the same even if the vagus were stimulated by a weak and the accelerator by a strong current; the inhibitory effect prevails under all circumstances. On the other hand, if the simultaneous stimulation was interrupted simultaneously, we see after the expiration of the inhibitory after-effect the long after-effect of the accelerator nerve making its appearance in such an undisturbed manner as to make us believe that the effect of the accelerator nerve was developed to its full extent even during the simultaneous stimulation. Indeed, it is now a generally accepted conclusion that during the simultaneous stimulation the accelerating effect is not annihilated, but only covered by the more powerful inhibitory effect of the vagus. I shall especially point out that after the cessation of the simultaneous stimulation the inhibitory after-effect of the vagus is visibly shortened; here the stronger after-effect of the accelerator nerve shortens the weaker after-effect of the vagus. All these principles have been studied and carefully laid down, especially by the very valuable researches of Schmiedeberg, Bowditch, and N. Baxt. I wish to add here only one point. According to the statements of Baxt, the effect of the simultaneous stimulation is exactly the same as of the solitary stimulation of the vagus—i. e., the co-stimulation of the accelerator nerve does not in the least affect the inhibitory result of the stimulation of the vagus. In an article published last year in Du Bois-Reymond's *Archiv für Physiologie* I dealt extensively with this question. I have shown that the effect of the co-stimulated accelerator is always more or less distinctly recognizable even during the simultaneous stimulation. The result of this stimulation is always a resultant of both opposing components; only that the inhibitory component is prevailing to such an overwhelming

degree that the influence of its opponent is hardly noticeable. The effect of the participating accelerator is the more distinct the stronger the accelerator nerve and the weaker the vagus were stimulated.

On account of the importance of some of the stated points, I wish to repeat them briefly. The inhibitory effect of the vagus possesses a short after-effect of about two seconds' duration; the after-effect of the accelerator nerve lasts several minutes. When both nerves are stimulated at the same time, then the inhibition prevails during the stimulation; after cessation of the stimulation first comes the shortened inhibitory after-effect, and then the long after-effect of the accelerating nerve makes its appearance.

We have assumed above that the peripheral nerves are only the paths leading to the functions within the heart. Thus the vagus is leading to the inhibitory function, and the accelerator nerve is the special road to the function superintending the contractions of the heart. But since the nerve fibers as such probably differ very little, we may rightly assume further that the above-stated differences of the peripheral nerves are in fact differences in the characters of the functions. Or there is at least no objection to the assumption that the characters and the mutual relations of the functions are about the same as of their respective peripheral nerves. Thus we may assume that the inhibitory function possesses a short latent period and also a comparatively short period for its after-effect. On the other hand, the after-effect of the function for the contraction may last several minutes. If, furthermore, both functions are stimulated simultaneously, we may expect a distinct prevalence of the inhibitory function during the stimulation; but after cessation of stimulation we should see the short after-effect of the inhibition still more reduced by the following long and strong after-effect of the antagonistic function for the contraction.

Now, if we further suppose that with each systole a stimulus is generated which affects both functions simultaneously, we should have before us a good working mechanism which is capable of regulating the beat of the heart in the following manner: The stimulus accompanying the systole affects the functions for inhibition and contraction simultaneously. But as the inhibition prevails during the stimulation, a relaxation must ensue; the relaxation, however, means cessation of the stimulus; therefore we now have before us the period of the after-effects—that means, first, the expiration of the short period of the inhibitory after-effect, which corresponds to the diastolic pause; and then the after-effect of the function for contraction follows—that means that a long-lasting contraction of the heart is to appear. But since this means a new systole with its stimulus, therefore the result is not a long contraction but a new cardiac cycle with relaxation, pause, and contraction, and so on *ad infinitum*.

But what sort of a stimulus could it be which should accompany each and every systole? Gentlemen, we might think, in the first place, of the negative variation of the muscle current which accompanies each contraction of the heart. This negative variation is sufficient to produce a muscular contraction, as is shown by the so-called rheoscopic frog.

If the nerve of an irritable muscle-nerve preparation is laid over a pulsating ventricle, each beat is responded to by a contraction of the muscle of the preparation. We could think then that the negative variation might be sufficient also to stimulate efficiently both functions within the heart. Indeed, I do not think that this assumption is inadmissible. But I confess that I am rather inclined to consider another incident occurring during each systole as the effectual stimulus. During each systole the heart contracts firmly; it becomes dense and hard. Owing to the spiral arrangement of the muscle fibers of the heart, with each energetic contraction a strong pressure must arise which is capable of mechanically stimulating all that is exposed to this pressure—that is, the muscle fibers themselves by their mutual compression, and all that is imbedded between them. And I think it is this pressure which stimulates mechanically both functions during each systole. Even when the heart is divided into small pieces, there still remains sufficient pressure between the contracted muscle fibers to serve as a stimulus. But the pressure is apparently at its best in the normal heart, as there the inner surface of the cavity of the heart is subjected to the great pressure coming from the opposite wall; this corresponds to the old known experience that stimuli which are applied on the inner surface of the heart are most efficient.

After the preceding statements, my theory of the mechanism of the heart may be briefly presented as follows:

There are within the heart two opposing functions, for inhibition and for contraction. During each systole a degree of pressure is developed sufficient to stimulate mechanically both functions at once. But during the stimulation the inhibitory effect prevails and therefore the heart is bound to relax. With the relaxation, however, the stimulation subsides, and we then have before us the period of the after-effects. Here we first see the short period of the inhibitory after-effect, winding up as a diastolic pause, after which the after-effect of the function for contraction makes its appearance, which means that a contraction of the heart is bound to appear. This contraction would last many minutes if the whole after-effect were allowed to wind up. But since this contraction means a new systole and a new stimulation, it is then cut off by the newly aroused inhibitory effect; therefore, instead of a prolonged contraction, a new cycle of relaxation, diastolic pause, and subsequent contraction takes place. In other words, the consequence of each contraction is a circle of relaxation, diastolic pause, and contraction. Thus each heart beat generates its subsequent diastole and systole. And we may therefore say that the beats of the heart are regulating their own rhythm.

I have stated above that after the heart contracts *ad maximum* it continues to be contracted for some time (about one tenth of a second) before relaxation takes place. That means, according to my theory, that the stimulus does not immediately bring on the inhibitory effect; or, in other words, the phase of the continuation of the contraction means the latent period of inhibition.

On the basis of my theory we can well understand why we can never produce a tetanic contraction of the muscle of the heart. It is because each contraction produces its



own inhibition, thus preventing the further continuation of the contraction. In a similar way the theory explains why the stimulation of the accelerator nerve brings on only an acceleration and augmentation of the beat of the heart, and never a continued contraction of the heart. It is again because each contraction cuts off its own continuation. Otherwise I am indeed of the opinion that the relation of the accelerator nerve to the function for contraction is exactly the same as the relation of the vagus to the inhibitory function—*i. e.*, by stimulation of the accelerator nerve we could indeed bring the heart to a continued contraction if we could only succeed in destroying the inhibitory function, or at least in removing its prevalence during stimulation.

I shall not go into further details showing the adaptability of many facts to my new theory. Only concerning the effect of atropine, I wish to say briefly that, in my opinion, atropine affects only the connections of the inhibitory function with the peripheral nerve or with the artificial stimuli: the connection of the natural stimuli with the inhibitory function remains unaffected. This will satisfactorily explain all facts concerning the effect of atropine on the cardiac inhibition.

I have to appeal to your indulgence for one or two more remarks. I have stated above that no effect is annihilated; that if the inhibitory effect prevails during a simultaneous stimulation, the effect of the co-stimulated accelerator nerve is nevertheless present, ready to appear at any offered opportunity. The same applies, as I now wish to add, to the now and then apparently destroyed inhibitory effect—*i. e.*, the inhibitory effects are covered and not destroyed. Now this fact has an important bearing upon my theory. According to it, the diastolic pause corresponds to the after-effect of the inhibitory function. This pause lasts only about half a second, while the after-effect of the stimulation of the vagus lasts about two or three seconds. We see, indeed, the same shortening of the inhibitory after-effect, as it was stated above, when the stimulation of the vagus and accelerator is simultaneously interrupted. But as the rest of the after-effect can not be annihilated, it must remain present and exert some kind of influence. And as each beat leaves such a rest and the duration of each rest comprises nearly two beats, we may well assume that all the rests add themselves together to an influential inhibitory tonus. These considerations have still more weight with the after-effect of the function for contraction. The after-effect of the accelerator nerve lasts many minutes, and we accepted the view that we might expect the same from the function for contraction. Now, according to my theory, the after-effect of the co-stimulated function for contraction from each heart beat is represented in the next following systole, and is cut off from further continuation by the new stimulus. And as the systole lasts only one third of a second, the hidden rest of the after-effect must last many minutes, or for a period of many hundred beats. That means from each beat remains a potential rest of the function for contraction extending over many hundreds of beats of the heart. Consequently we have the sum of many hundreds of these potential rests all the time present. What a very powerful tonus all these rests of the function

for contraction must build up! This strong tonus will certainly suffice to call forth a strong contraction as soon as the diminished inhibitory effect or after-effect will permit it. Indeed, it is my opinion that the systole which appears after the diastolic pause (shortened inhibitory after-effect) is brought on by the said strong tonus of the function for contraction, and not merely by the after-effect of the last systolic stimulus. I rather believe that the after-effect belonging to the function for contraction just stimulated by the last systole ought to come after a much longer period than the diastolic pause, on account of the long latent period peculiar to the function for contraction, as seen in the stimulation of the accelerator nerve.

It is probable that the tonus of the function for contraction interferes with the diastole so much as to prevent a full relaxation of the heart at each diastole. On the other hand, the inhibitory tonus probably also interferes with the systole so much as to prevent every contraction from being the strongest possible.

In conclusion, I wish to remark that my theory of the self-regulation of the beat of the heart is similar in the main points with my theory of the self-regulation of respiration, which I have described elsewhere. Here as well as there we have the antagonism between inhibition and contraction; here as well as there the inhibition prevails during the stimulation, while the contraction overlasts in the period of the after-effects. Here as well as there the pause corresponds to the shortened inhibitory after-effect. And here as well as there the stimulus is a mechanical one, produced by the natural function of the acting organ; here it is the contraction of the heart, there it is the expansion of the lungs. Certainly neither of these theories suffers by their mutual resemblance.

66 EAST 124TH STREET.

## ON SURGICAL DISEASES OF THE NECK,

INCLUDING THE FIRST ANNUAL REPORT OF  
THE SPECIAL DEPARTMENT OF SURGICAL DISEASES OF THE NECK  
AT THE GERMAN POLIKLINIK OF THE CITY OF NEW YORK.

By CARL BECK, M.D.

(Concluded from page 466.)

### SARCOMA.

CASE I. *Lymphosarcoma*.—Mrs. Lizzie F., housewife, aged sixty-five, born in Austria; family history good. Six months ago she noticed a small lump in the right submaxillary region, which since has grown to the size of a goose egg and caused considerable interference in swallowing. On June 17, 1892, when first seen, the tumor filled out the whole space between the processus mastoideus and the os hyoideum and pushed the soft palate forward. In it there existed a cavity of peanut size covered with detritus. No mobility; great weakness. The axillary and inguinal glands were swollen; also some small hard tumors on both forearms were noticed. An operation did not seem to be advisable any more.

CASE II.—Christof B., aged sixty-one, born in Germany; family history good. Six months ago he noticed a sharp pain in his left arm down to his fingers, also a feeling of weakness and heaviness in his shoulder and arm; three months later he first found a hard lump in the left supraclavicular region. On

March 29th, when he was seen first, his tumor, of hen's-egg size, was very painful to touch. Specific treatment was unsuccessful, wherefore the diagnosis lymphosarcoma was made. On May 20th removal of the growth. Union took place by first intention. The microscopical examination corroborated the diagnosis. The pain, however, disappeared for only four weeks. Three weeks after the operation a relapse could already be noticed. On July 29th the tumor was extirpated again. This time it reached as far back as the cervical vertebrae and was so much attached to the neighboring tissue that the internal jugular vein had to be ligated twice. This time union by first intention was obtained again, but the pain remained just as before and could only temporarily be stopped by morphine. On August 10th he showed symptoms of pleuritis and died three days after. The autopsy revealed pleuritis, suppurative bronchitis, and no metastasis in internal organs.

CASE III.—Max W., aged eight, born in New York city; family history good. Eight weeks ago his nose became obstructed. The family physician first diagnosed a severe catarrh. Later on, when the symptoms became aggravated by interference with pronunciation and deglutition, he observed a swelling of the right tonsil and a protrusion of the palate. Assuming that an abscess was forming, he incised and found blood. Repeated puncture revealed the same. On November 13, 1892, when first seen by me, I found the right tonsil enlarged to nearly hen's-egg size and the soft palate pushing toward the base of the tongue. My first impression was that adenoid vegetations had reached an exorbitant extent, but closer examination taught me soon that I had to deal with a malignant growth. Four days later, after the temporary resection of the inferior maxilla, I removed the growth, which was extending up to the fossa sphenopalatina without interfering with large blood-vessels. The operation was partially performed leaving the head hanging down and only under temporary anesthesia. After a considerable improvement I was very much disappointed to see a relapse already four weeks after the operation. Six weeks after operation dyspnea set in, which was checked by tracheotomy. After a short period of improvement the patient died from marasmus. Autopsy declined.

CASE IV.—Wenzel L., aged thirty-nine, Bohemian; family history good. Three months ago, noticing a hard lump in his pharynx and at the same time interference with deglutition, he went to a dispensary, where he was attended for chronic catarrh without relief. One month ago he, at the German Poliklinik, was examined by Dr. Freudenthal also, who, after an unsuccessful specific treatment, suspected a malignant growth. On October 10th, when first seen by me, the patient showed a very hard tumor inclosing the whole left tonsil and the neighboring portion of the palate and was extending toward the base of the skull. The growth, being of hen's-egg size, was painful; it could be felt from the outside and showed evidence of ulceration on the inside. Several submaxillary glands were swollen. The operation was preceded by tracheotomy. A Trendelenburg's tampon cannula was introduced, as profuse bleeding had to be expected. The temporary resection of the inferior maxilla was done and immediately followed by the extirpation of the very hard fibrosarcoma, which had reached the fossa sphenopalatina. Uninterrupted recovery followed until three months later a relapse, setting in under cerebral symptoms, produced septic infiltration, which, two weeks after the new process had been noticed, ended the patient's misery.

CASE I. *Carcinoma*.—Rosa F., forty years of age, born in Germany; housewife; sterile. Family history good. In February, 1890, total vaginal extirpation of the uterus for carcinoma was performed by me. She had been doing very well until

afterward—on January 7, 1892, when I saw her again—she reported that she, for the last few weeks, had noticed a small lump on her neck which did not cause any pain.

On examination, I found in the supraclavicular region a hard tumor of peanut size. Mobility was perfect. Although the patient was in excellent health, my suspicion of carcinoma was very natural. But my advice to have an immediate extirpation performed was not accepted.

Three months later the tumor was of more than goose-egg size, softer, non-movable, and especially adherent to the skin, where the so-called cancer navel could be observed. As great pain had been present for the last few weeks, the patient now demanded extirpation herself.

The operation was performed successfully on April 5, 1892.

Union by first intention was obtained. The condition of the patient was excellent until November, 1892, when a relapse made its appearance in the scar. Shortly after, icterus and anasarca set in, undoubtedly due to carcinoma of the liver, to which, in the course of four weeks, she succumbed. No autopsy.

CASE II.—Henry W., forty-nine years of age, born in New York city. Healthy appearance. Father had died from cancer of the stomach. Since four months he suffers from a suppurating and painless tumor on the left upper trigonum. The patient declined operation and left our department.

CASE III.—Caspar B., sixty years of age, born in Germany. Family history good. Patient has always been well until in December, 1891, he noticed a painless swelling under the left side of his lower jaw. He did not consult his house physician until, two months later, the slowly growing tumor became sensitive. Poulticing was done and iodide of potassium given internally for about four weeks, when the skin above the tumor became red and soft.

A distinguished surgeon, who was called in consultation, incised and scraped, assuming that the disease was a suppurating gland.

But soon after this operation neighboring glands swelled, the pain increased, and the patient's general condition became worse. On May 7, 1892, on seeing the case first, I found a hard tumor of peanut size in the submaxillary region.

On the anterior margin of the sterno-cleido-mastoid four glands were found to be enlarged. Extirpation was done by dissecting the sterno-cleido-mastoid. The recovery was complete already three weeks after the operation, when he, having had frequent previous attacks of delirium tremens, became a maniac. Two days later he suffered an apoplectic spell, during which he died.

CASE IV.—Hippolyte L., sixty-seven years of age, born in Austria. Family history good. For three months he complains about difficulty in deglutition and of a burning sensation in his pharynx. His house physician treated him with a gargle. On March 11, 1892, when first seen by me, he appeared sick and showed great debility. The inspection of the pharynx revealed a tumor which was of hen's-egg size and involved the right tonsil. The removal of the soft tumor was not very difficult and could be done without any preliminary operation. The patient was doing very well until January, 1893, when he was reported to me as having died from pneumonia.

CASE V. *Carcinoma of the Larynx*.—L. M., forty-three years of age, saloon keeper, born in Germany. Family history good. Patient gives a specific history. For six months hoarseness and increasing interference with deglutition. Loss of strength and appetite. His house physician, under whose care he was for nearly fifteen years, reported that he repeatedly has suffered from laryngeal symptoms and swelling of the glands of the neck. Iodide of potassium always had given instant relief, but this time had failed to do so.

As the dyspnea assumed a dangerous character, tracheotomy was performed successfully by a prominent surgeon of this city, who put him under specific treatment afterward.

Temporary relief, especially improvement of the general condition, was gained, but on both sides the supraclavicular glands, extending to the lower border of the thyroid cartilage, were enlarged to the size of a goose egg on either side.

On January 16, 1893, when first seen by me, he complained of great weakness and loss of appetite. Temperature, 100°; pulse, 98; respiration, 26. No dyspnea. The tracheal canal was well formed. No voice, but some words could be understood. The patient was sent to St. Mark's Hospital for thorough observation. Inunctions were daily made.

A laryngoscopic examination revealed an irregular mass, broadly infiltrating and filling the laryngeal cavity. I may add that a fetid odor was present. The whole extent of the disease, of course, could not be recognized.

On January 23d the patient became chilly and vomiting set in at the same time. Temperature, 104.4°; pulse, 100; respiration, 30. Treatment was expectant for two days.

As there was no change for the better, extirpation of the larynx was performed. After having introduced Trendelenburg's tampon cannula a longitudinal cut was made in the median line reaching from the hyoid bone to the third tracheal ring. A cross incision alongside the hyoid bone was added. After having dissected the soft tissues, they, with the peristeam, were pushed aside and by the blunt use of Cooper's scissors the whole cartilage was laid bare.

The cricothyroid, and later on the superior laryngeal, artery could be ligated before being cut through. With a blunt hook the cartilage could then be pulled forward, and in connection with it the epiglottis was removed after having dissected the attachments to the oesophagus.

After insertion of two ligatures into the third tracheal ring, the trachea was severed.

When the operation was completed the large cavity was left open and packed with iodoform gauze; an oesophageal tube was inserted and left *in situ* for three days. The microscopical examination elicited evidence of carcinoma.

The patient's condition was excellent after the operation. For the next six days the average temperature was normal, the pulse 90, and the respiration 21.

In the place of the tampon cannula, an ordinary one was inserted the following day.

Profuse salivation was the only complaint of the patient.

The gauze was renewed twice daily.

On February 4th the gauze was found saturated with arterial blood, wherefore it was pulled out carefully. After the last piece was extracted the bleeding increased. With my index finger I was able to compress it till the head was brought into a dependent position. Now I could see the bleeding from a small branch of the cricothyroid, from which the ligature had slipped off.

It was easily caught, and the cavity again packed with iodoform gauze. The oesophageal sound had been removed already two days ago, and was only introduced three times a day for purposes of nutrition.

On February 10th, after having been in an excellent condition (he, for instance, was able to walk around in the wards of the hospital), he suddenly became chilly and pneumonia developed. Death the following day. Autopsy showed double broncho-pneumonia. The considerable enlargement of the bronchial glands made it probable to me that, if the operation had been performed earlier, the chances of success would have been considerable.

CASE VI. *Carcinoma of the Supraclavicular Gland.*—Mrs. Adelaide S. (case presented to the New York County Medical Society's stated meeting of November, 1892). aged fifty-three years, sterile, a native of Germany. Mother had died from a tumor in the abdomen.

Patient has always been well until January, 1888; she then first noticed a small lump in the right mammary gland, near the nipple.

She had first treated the lump by external application till she was advised by her house physician to undergo an operation for carcinoma.

On May 20th I amputated the whole breast, extirpating at the same time several glands of the axilla, which, by the way, could not be distinguished through the skin before the operation.

Union took place by first intention, and the patient gained considerable in weight.

In April, 1890, when two nodules, of filbert size, were discovered in the scar, I made a second extirpation, followed by perfect recovery.

In February, 1892, six nodules, from pea to marble size, which lately had made their appearance, were extirpated.

Four months later the supraclavicular glands commenced to swell. Injections of iodoform ether and the internal use of Roncigno water seemed to stop their growing.

On October 29th, after three months of absence, she showed up again with a nodule of marble size in the middle of the scar of the mamma.

The patient's general condition was not as good as usual.

Immediate extirpation was done, and, although a great quantity of skin was removed this time again, the edges could be brought together, and, in spite of considerable tension, union took place by first intention.

No glands in the axilla were found this time.

I was astonished to find the supraclavicular glands decrease in size after this fourth removal.

Until now—that is, five years after the first removal—the patient has been in a fair condition.

The hardened supraclavicular glands are still enlarged, but cause no trouble.

CASE VII. *Carcinoma (Esophagi).*—Philipp N., aged fifty-nine years, German, family history good. For the last year he had noticed a burning sensation while swallowing warm meals; in the last four months deglutition was interfered with also.

On January 4th, when seen first, he appeared sick. Temperature and pulse were normal. Nine inches from the front teeth a stricture was detected, which only allowed a very thin sound to pass.

Repeated sounding improved his condition temporarily, but later on deglutition became very tedious. Patient left our department. No further report could be furnished.

CASE VIII. *Esophagectomy.*—Martha R., aged sixty-one years, widow, born in Germany. Mother died from carcinoma uteri. Among four of her children, one had died early, the other three are well. The patient had been feeling well until six months ago, when she noticed difficulty in deglutition. Two months ago a swelling on the left side of the larynx had appeared at the same time. She was only able to swallow liquid food.

A very thin sound passed a stricture six inches from the teeth.

On February 7th longitudinal incision on the posterior margin of the right sterno-cleido-mastoid was made, to which later on a cross incision toward the middle of the larynx was added.

The nervus vagus and carotis and jugularis, together with



the ramus descendens of the nervus hypoglossus, could be pulled back with blunt hooks. A lead sound, previously introduced through the mouth, could not be felt, wherefore the œsophagus was incised between two forceps.

A tumor of hen's-egg size could easily be felt. After first having bluntly loosened the lower part of the growth, it, together with the œsophagus in its whole circumference, was resected with Cooper's scissors. Then it was easy to remove the upper border.

The interspace between the two œsophageal fragments amounted to an inch and a half. Sewing was abstained from. A soft catheter was left *in situ* for the purpose of nutrition. Packing with iodoform gauze. The following day the patient was very weak. Temperature, 101°; pulse, 120.

One day later fetid odor and profuse sero-purulent discharge from the wound was noticed.

On the fourth day the patient died with the symptoms of a pleuritis on the right side. No autopsy was allowed.

Three cases of suppurative tumors were turned over to the department of vetercal diseases.

CASE I. *Fibroma*.—William O., aged forty-one years, driver, for the last nine years is suffering from seventeen tumors of peanut to goose egg size.

The growths had not been growing during the last four years, and were situated at the subauricular and supraclavicular region of both sides.

As disfigurement was the only symptom complained of, the patient, who had expected to be cured by the use of an ointment, declined an operation.

CASE II. Jacob W., aged forty-one years, peddler, born in Germany. For the last three years he noticed a hard lump in the subauricular region, which now had reached the size of a goose egg. Extirpation on May 6, 1892. Union by first intention. Has recently been reported well.

*Lipoma*.—Three cases, all males, twenty-one, thirty, and fifty-three years of age. Two were situated in the subclavicular region, one occupied the region above the transverse processes of the fifth and fourth cervical vertebræ. Extirpation was followed by first intention.

The one lipoma, concerning a man fifty-three years of age, was considered to be a fibroma before extirpation on account of its hardness, which was caused by several thick bands of fibrous tissue, extending through the fat-flaps.

*Struma*.—Six cases (two colloid—struma gelatinosa—and four fibrous), two males, four females, fourteen, seventeen, thirty, forty, forty-two, and fifty-one years of age.

Four were born in Germany, two in Switzerland.

None of the strumas exceeded the size of a goose egg.

No pressure symptoms except in the case of a Swiss gentleman, fifty-one years of age, who sometimes had asthmatic paroxysms. All the cases were cured by from seven to twenty-four injections of iodoform ether. At the same time iodide of potassium was given.

All cases of struma observed by me in this country during a period of eleven years could not in the least compare with those commonly occurring in many parts of South Germany, Switzerland, and the Tyrol, this probably being due to the excellent drinking water of this country if we assume the non-parasitic nature of struma.

*Angioma*.—Three cases of children (one male, two females), one being one month, another three months, the third one eighteen months old, when they underwent treatment. One, being of the size of a quarter, was situated at the right upper trigonum, the two others right above the manubrium sterni; one of those cases was of the size of a fifty-cent piece, the other one larger than a silver dollar.

While the two angiomas named first were easily removed by the use of Paquelin's cautery, the latter, belonging to a girl eighteen months of age, on account of its contents, was first treated by puncture with the galvanic needle. As this slow process exhausted the patience, I removed the entire growth with Paquelin's cautery at one time. A very large scar was forming which was treated by massage, so that now no interference with the mobility of the muscles of the neck can be observed.

*Atheroma* (superficially located).—Two cases, both being single and not showing adhesions, successfully extirpated by my method described above.

*Hydrocele Colli*.—One patient, Martin L., fourteen months of age, has had a soft lump of peanut size on the middle of the anterior margin of the sterno-cleido-mastoid ever since birth. The family physician diagnosticated a cold abscess and advised incision on account of the presence of fluctuation, although the child was looking a picture of health. Operation, which never in a doubtful case should be omitted, revealed a serous fluid.

Iodoform ether, injected four times, effected a cure.

*Meningocele Spinalis*.—One patient, Anna R., two days old, was born with a tumor of hen's-egg size in the middle of the posterior neck. Healthy appearance. No paralytic symptoms; slight fluctuation. Aspiration yielded clear serous fluid. As the tumor was movable, a chiasm in the corpus of the fourth cervical vertebra could be felt. Incision of the tumor on March 16, 1893, revealed a sac filled with cerebro spinal fluid and consisting of dura mater which was removed.

The edges could be united with three catgut sutures (thinnest size). Union by first intention followed. Up to date the child, with the exception of frequent vomiting, has remained well. As the communication with the spinal canal was very small, a thorough and final obliteration may be expected.

*Congenital Fistula*.—One patient, Rebecca R., twenty-one years of age, born in Austria, since birth has suffered from a small opening on the anterior margin of the sterno-cleido-mastoid, about one inch above the upper border of the sternum. A thin probe introduced into the fistula touched the cornu majus of the thyroid bone. A gelatinous fluid was discharged from the canal once in a while. Repeatedly it had closed spontaneously. After a thin galvanic needle was introduced seven times perfect occlusion was obtained.

As only six months have elapsed since, I am uncertain yet in reference to the final result.

*Torticollis*.—Three cases. Slight scoliosis present in all cases, which were one of seven, one of eighteen months, and one thirteen years of age; two males, one female. All the cases were operated by a free incision, this allowing a thorough separation of the thick fibers of the sterno-cleido-mastoid. Union by first intention. After-treatment by jury mast was always followed by perfect recovery.

*Caries and Necrosis of Cervical Vertebra*. CASE I.—Carrie N., four years of age, born in New York city. Family history good. Kyphotic for one year (history of a fall); showed an abscess on the posterior margin of the right sterno-cleido-mastoid in its middle. An incision made by the family physician brought forth two tablespoonfuls of thick pus of offensive odor. Patient's condition did not improve after this interference.

On May 29, 1892, she was seen first by me, and I could make a carefully manipulated probe touch bare bone.

A trap-door flap incision was made on the posterior margin of the sterno-cleido-mastoid. By proceeding bluntly the prevertebral space was reached, wherefrom about a tablespoonful of cheesy pus was emptied. The third and fourth transverse processes, besides the portion of the arcus, were found loose and in a necrotic state, wherefore they were extracted. The cavity was packed with iodoform gauze and plaster-of-Paris dressing

applied, which embraced chest and head. A fenestra corresponding with the opening was left. Considerable improvement followed for three months, when the patient fell a victim of the *grippe*.

CASE II.—Jacob R., two years of age; family history good. Six months ago, after a short period of illness, in the left submaxillary region a tumor was forming, which was incised by the family physician. A considerable amount of pus was discharged, but the wound did not heal in spite of a drainage-tube and the most careful antiseptic precautions.

On December 5, 1892, when first seen by me, a probe touched denuded bone. A longitudinal incision was made on the posterior border of the sterno-cleido-mastoid, and the rest of the operation done as above. The transverse process of the epistropheus, which was found diseased, was chiseled away entirely.

By open treatment, recovery followed eleven weeks later.

Immobilization was secured by the use of my modification of a Kramer's wire splint,\* which extended from the eighth dorsal vertebra up to the forehead.

CASE III.—Rosalia B., twenty-four years of age, born in Russia, housewife. Mother of two healthy children. Family history good. Eight months ago, in the middle of the right neck, she noticed a painful swelling which, after four weeks' standing, had been incised by the family physician. The after-treatment consisted in various kinds of poultices. Patient lost twenty-seven pounds. The slightest motion of the spinal column caused severe pain.

On January 18, 1892, when first seen, a fistula was noticed behind the cornu majus of the hyoid bone. A carefully manipulated probe at last touched denuded bone.

A T-shaped incision (longitudinally on the posterior margin of the sterno-cleido-mastoid) was made. The rest of the operation was done as mentioned above. A necrotic bone fragment of the size of a filbert, slightly attached to the arcus of the fifth cervical vertebra, could easily be removed. Open treatment. Perfect union after three months. (Four weeks ago the patient was confined with a healthy child.)

*Retropharyngeal Abscess* (three cases).—In this connection I may state that as early as May 18, 1886, Dr. Max Bracker and myself made use of external incision in a child, eighteen months of age, suffering from retropharyngeal abscess, as we regarded it impossible to use antiseptic treatment after having made an internal incision. Later on I made it a habit to add a counter-incision on the other side of the neck, introducing my finger into the mouth and incising on its tip at the posterior margin of the opposite sterno-cleido-mastoid.

I then introduced a drainage-tube, surrounded by fifty-per-cent. iodoform gauze, right through for the next few days, thus surely avoiding retention of pus.

CASE I.—Charles H., four years of age, born in New York city; family history good. On May 10, 1892, I was called by a prominent physician to perform tracheotomy for croup. The little patient had been suffering from chronic catarrh of the nose, and since the last seven weeks he could not breathe through the nasal passages at all. Since five days the symptoms of dyspnoea and hoarseness had gradually commenced. When I came, the little patient was found to have dyspnoea; at the same time slight snoring indicated that nasal breathing was interfered with.

There was only a very slight swelling on both sides of the neck, which was not painful by pressure; a few glands of the average size of a pea present. The pharynx showed a nearly normal condition; palpation of the same could detect no fluctuation.

But the swelling led me to suspect a deep-seated abscess being the cause of pressure upon the larynx. I therefore insisted upon making an external incision before tracheotomy could come into question.

And, actually, on making an incision on the posterior edge of the sterno-cleido-mastoid, as in cesophagotomy, I detected about one tablespoonful of creamy pus on a level with the fifth vertebra. A slight but sufficient relief was afforded immediately, and uninterrupted recovery (lasting six weeks) followed.

CASE II.—Bella N., two years of age, born in New York city; family history good. Nasal catarrh since many months; for the last two days snoring and difficulty in respiration and deglutition.

On March 1, 1892, first seen by me. The child appeared cyanotic; expression of face very anxious. Mouth wide open. Respiration, snoring and snuffling. The whole neck appeared to be stiff. In the right submaxillary region a tumor of goose-egg size. Inspection of the pharynx shows a small tumor which pushed the posterior pharyngeal wall forward. Touch by the index finger revealed fluctuation. Immediate incision and contra-incision under chloroform brought instant relief.

Perfect recovery was obtained four weeks afterward.

CASE III.—Moritz P., eleven months of age, born in New York city; family history good. Nasal catarrh since the time of his birth. For the last six days perfect obstruction of the nose and the peculiar sound produced by breathing through the mouth only. Since two days, difficulty in deglutition and impossibility of nursing.

On July 27th, when first under observation, the very anæmic child was restless and had his mouth wide open. Snoring could be heard before the sick room was entered.

In the left submaxillary region a hard tumor of hen's-egg size could be noticed. The pharyngeal space was nearly filled up by a tumor of the same size. Fluctuation well marked on the pharyngeal walls. Immediate incisions on both sides under anaesthesia brought relief at once. Recovery perfect after four weeks.

*Angina Ludovici*.—Fred A., forty years of age; born in Germany; family history good. Has never been sick until two days ago he suddenly became chilly, and shortly after noticed a sharp pain in his pharynx. The family physician diagnosed tonsillitis. The next day his symptoms became aggravated; a hard, submental swelling appeared.

On December 20, 1892, when first seen, he gave the appearance of a septic patient. Temperature, 102°; pulse, 125. In the submental region and in the right submaxillary region a swelling of goose-egg size could be noticed.

Slight dyspnoea and very marked dysphagia were present. The posterior wall of the pharynx protruded forward. A longitudinal incision on the posterior margin of the sterno-cleido-mastoid, to which a cross-incision alongside the inferior margin of the lower jaw was added, discharged a teaspoonful of seropurulent fluid and some necrotic tissue. Uninterrupted recovery followed quickly.

*Spondylitis* (nine cases—six in males, three in females).—Two were born in Germany, three in Austria, one in Russia, and three in New York city; four were under three, three between three and thirteen, and two above this age. In four cases the family history was good, five had repeatedly suffered from bronchitis, pneumonia, and enteric attacks. All of them were treated with the jury mast locally, while internally the same principles as described for tuberculosis were employed. Four patients are well; five have considerably improved and are still under treatment.

*Partial Dislocation* (diastasis of the vertebrae, two cases).

CASE I.—George N., brewer, aged forty-three, born in Ger-

\* See New York *Medizinische Monatschrift*, January, 1893.

many, a healthy man, one week ago fell from a beer truck and at the same time a heavy beer barrel struck his neck. He was unconscious for two hours; then his only complaint was a stiffness in his neck and both shoulders and a sharp pain alongside the cervical column. Both arms could only be lifted to a limited degree. The sensibility was interfered with nowhere. Difficulty in deglutition and pronunciation. No mobility of the spinal column. On June 23, 1892, I found that the spinous process of the fourth cervical vertebra showed considerable projection; the one of the third was sunk in. The index finger, introduced into the pharynx, felt the third vertebra protruded, while the fourth one appeared to be pushed back. The recumbent position and permanent extension for at least ten weeks in Glisson's cradle was advised, but the patient did not show up again.

*Diatasis of Fifth Cervical Vertebra* (New York Med. Monatschrift, May, 1892).—John T., aged twenty-six, of tall stature, born in New York city. Specific history: Seven weeks ago while carrying stones he fell off a step-ladder and was unconscious for several minutes. A marked disfigurement on his neck was noticed by his comrades at once. The neck was entirely stiff and very painful, just as well as the upper dorsal region. No paralytic symptoms were present.

On February 8, 1892, when first seen by me, he looked like a kyphotic patient. Only with the use of an immobilizing collar was he able to sit or stand up. No mobility. No interference with sensibility. Slight disturbance of deglutition. Voice weak and hoarse. A protuberance very sensitive to the touch, of nearly the size of a man's fist, extended from the second dorsal up to the third cervical vertebra. It was impossible at this period to discover the particular vertebrae participating in the swelling. On inspection of the pharynx, a curvature of the spinal column could be noticed. On palpation, it was found that the sixth cervical vertebra was protruding, while the fifth was lying far back. A laryngoscopic examination by Dr. Freudenthal was almost impossible, as the projection nearly overlapped the epiglottis.

After a treatment with Glisson's cradle for three months, combined with inunction of blue ointment, recovery was obtained so that the protuberance in the pharynx has entirely disappeared. On the outside still, one year after the accident, an elevation of peanut size could be noticed. There was no more trouble, however. It is questionable to what extent the luetic condition had added to the original swelling, the vitality of the tissues having perhaps thus been impaired.

In reference to *enlarged tonsils* (nine cases) it may be stated that extirpation was always performed with the blunt-pointed knife, as by pulling the tonsil forward with Muzaux's forceps much more could be excised from the hypertrophied organ.

*Disfiguring and Deforming Scar, caused by a Burn*.—Jacob W., aged three, born in New York, on April 30, 1892, had been burned over the whole right side of his neck, the burns being of the third degree. Healing was completed three months later, but the cicatricial tissue had become so hardened that contraction took place, causing the chin to approach the sternum. Glisson's cradle applied for six months had improved the position of the head so much that by the use of an immobilizing collar the neck could be kept up straight.

*Foreign Bodies in the Œsophagus*. CASE I.—Deborah L., aged eighteen months, born in Russia (see New York Med. Monatschrift, April, 1892), while playing had swallowed a quarter of a dollar piece. Physicians had at once tried to produce emesis and afterward to extract it, but without any effect. The little patient, however, was able to swallow liquid food, but lately she vomited repeatedly. When I heard the parents' report, four weeks after the accident had happened, it seemed to me hardly credible. I could not understand how a piece of

such a size could pass the Œsophagus of a child of her age, nor that the condition could continue without developing more alarming symptoms. Therefore I had the impression that the patient, who was not looking bad at all, was more the victim of forcible medical and surgical interference than of anything else. More as a matter of duty, therefore, than in the expectation to find the foreign body, I introduced my coin-catcher. After first having touched the walls of the pharynx without noticing anything abnormal, I passed the isthmus. There I met with a resistance. Instinctively I turned the sound, made a slight traction, and indeed felt it yielding. After this, resistance was experienced again and further traction was impossible. So I introduced my index finger far into the pharynx, where, to my great surprise and joy, I could feel the coin and extracted it. Perfect recovery followed. The appearance of the coin had somewhat changed. On some portions, probably where it was lying free, it looked polished; on some other portions, where it had been impacted in the mucous membrane, a crust of dried up secretions covered its surface.

CASE II.—Willy N., aged eleven months, born in New York city (see *Medical Record*, January 21, 1893, p. 89). Two days ago, while playing, he had swallowed a so-called campaign button, being of the size of a penny. Various means were resorted to to fish it up or to push it down by several colleagues, but they did not avail. On December 17, 1892, when I first saw the child, I performed Œsophagotomy. The button was found on a level with the upper border of the first rib, where, on account of its sharp edges, it had perforated the Œsophagus toward the trachea, on which it had exerted pressure. The incision had been made alongside the left anterior margin of the sterno-cleido-mastoid. The wound was only partially closed and the remainder left open and packed with iodoform gauze. As the operation could be done quickly and without considerable injury or loss of blood, I had hopes for the patient; but he died the next day from broncho-pneumonia.

This case illustrates the great danger of delaying Œsophagotomy after extraction or pushing down had been tried in vain.

In conclusion, I like to state that I am very much indebted to Dr. F. Haendel, Dr. A. H. Stiebeling, and Dr. A. Haymann for taking the records of the cases reported above.

37 EAST THIRTY-FIRST STREET.

## NON-MEDICINAL REMEDIES IN ANÆMIA.\*

By SIMON BARUCH, M. D.

UPON the recognition of the ætiology of anæmia depends its successful treatment. So long as anæmia shall remain associated with iron treatment in the minds of physicians, so long will its management remain unsatisfactory. Pure empiricism is to be deprecated at all times. While therapeutics may never become strictly scientific, owing to the varying condition of the premises involved in each therapeutic problem, we may at least aim at some rational basis for our treatment of disease. The reputation of iron in anæmia rests upon an entirely empirical basis. Modern physiology teaches that the action of this remedy, undoubted as is its value, can not be explained upon rational

\* Read before the Section in General Medicine of the New York Academy of Medicine, April 18, 1893.



principles. Indeed, the idea long held that iron improves the blood by furnishing to it the lacking mineral constituent is happily losing ground. It has been calculated that the entire quantity of iron in the human body amounts to about fifteen to forty-five grains, and that the greatest loss of iron discovered in an anæmic patient is about three to four grains. A quarter of a pound of good beef is capable of furnishing this quantity. Iron is an important and necessary constituent of the blood, one which is constantly lost in various secretions, chiefly in the bile, and which is eliminated in the feces and urine; but it is regularly furnished by the food, especially the albuminoids.

Primary anæmia appears to be generally regarded as the manifestation of a defective balance between the intake and outgo of iron in the blood. We say that a patient is anæmic when his tissues lack the ruddy color indicative of a perfect condition of the blood. It is an elementary physiological fact that this color is due to the presence not only of a sufficient proportion of red corpuscles, but to the presence in the latter of a sufficient proportion of hæmoglobin, or rather of hæmatin, whose most important constituent is known to be iron. How this iron is supplied to the hæmoglobin is still too obscure to afford a basis for therapeutic deduction.

This much, however, is positively known: that the function of iron in the hæmoglobin is *respiratory*; in other words, iron is the great oxygen carrier of the blood, and therefore of the whole body. This is proved by the fact that, when strong sulphuric acid is added to the hæmatin, it takes up the iron contained in it, and, while the color still remains, its power of combining loosely with oxygen is entirely destroyed.

It must be considered that the change from venous to arterial blood is due not, as was formerly supposed, to exchange from a ferrous to a ferric salt, but to a change in the hæmoglobin of the venous blood to that of oxyhæmoglobin of arterial blood. While the hæmoglobin of venous blood contains some oxygen, the hæmoglobin of arterial blood is nearly saturated with oxygen.

It follows, therefore, that, since iron is essentially the oxygen-carrying constituent of hæmoglobin, even a seemingly trivial lack of it in the blood must seriously embarrass the arterializing process which lends to the tissues their ruddy hue. I have already referred to the improbability of large quantities of medicinal iron being necessary to supply this lack in the hæmoglobin. May we not deduce a more rational method of treating anæmia from the consideration of the brief physiological data referred to?

I have mentioned these elementary physiological facts in order to emphasize the necessity of greater regard to the ætiological factors dominating this condition, and thence to make therapeutic deductions.

Unfavorable environment is a frequent cause contributing to the development of anæmia. Confinement to badly ventilated schoolrooms, deprivation of outdoor exercise, digestive troubles due to these, improper and insufficient food, and mental anxiety are recognized factors. Of what avail would the administration of iron be in such cases so long as these ætiological elements are active? Of what

use would an addition of iron to the hæmoglobin be if its hunger for oxygen can not be appeased by exposure of the patient to pure air? I would plead, therefore, first, for the provision of an ample supply of oxygen to anæmic patients, not oxygen artificially made and forced into the lungs, but oxygen obtained in the only perfect form—from natural sources, in the fields, in the woods, in the parks, freed from human emanations, which contaminate it even in the better class of city and town dwellings. Those who have done much dispensary practice will agree that among the patients of the tenement districts iron is particularly unsuccessful. The latter is also true in school girls and boys who are subjected to continuous lessons and are thus deprived of access to pure air and muscular exercise. The lesson taught by common sense would be to remove the patient from his unfortunate surroundings rather than to ply him with medicinal agents and improve his blood. Severe anæmics among the poorer classes must be brought to the hospital, where at least the air is pure, and other important agencies of restoration are available. It is surprising how such a change brings back the color to the pallid cheek of the factory girl and the clerk. Though they may not be ill enough to have life threatened, these poor creatures are entitled to the same care as a case of typhoid or pneumonia. A few weeks' residence in a clean, well-aired hospital ward will do more to restore such cases to health than iron or arsenic alone. And this brings me to another point I desire to dwell upon—viz., the inutility, nay, the impropriety, of advising active exercise for every case of anæmia.

Too often the direction is given to the anæmic who is in good financial circumstances: Take plenty of exercise, good food, and these iron pills three times a day. Many cases, especially those which suffer from dyspnea and rapid heart action, would be more improved by being exposed for hours in the open air, quite at rest, in a hammock in summer, or a steamer chair wrapped in furs or blankets in winter.

Passive exercise by massage and Swedish movements once or twice a day would be far more valuable exercise than walking or even riding. Putnam Jacobi has by careful observation brought out the value of massage in anæmia, and Weir Mitchell has demonstrated the importance of rest combined with massage methodically administered. Their success after failure of active exercise and medication vouches for the correctness of the view here inculcated.

2. Systematic exercise in the open air should be advised. Special stress must be laid upon the adjective "systematic." Let the direction for exercise be as precise as for the pills; let the duration, variety, and frequency of repetition be distinctly ordered. Ranke has investigated the effect of muscular action upon the total blood in the body. He has shown that its first effect is diminution of the blood quantum, which becomes more marked as the intensity of the muscular action increases; but when the body became accustomed to active exertion, the total blood quantum was increased. Thus is physiologically demonstrated the great benefit of methodical exercise, and espe-

cially the necessity of adapting it to each individual case of anæmia.

3. *Diet.*—The adaptation of a proper diet to anæmia is not a difficult problem. I plead only for more punctilious regard to the needs of each case than is usually given. The fancies and caprices of the patient should be less regarded than is the practice now, for many articles of food that seem repugnant to the patient may be gradually administered if a good nurse is instructed to persist in their systematic use. Weir Mitchell has in this respect taught us a lesson also. Many patients who were absolutely without appetite and to whom all food was repugnant have been systematically fed by properly selected attendants until the quantity consumed by them was enormous. We yield too easily to the predilections of the patient in this regard. It must be borne in mind that usually all appetite is lost or impaired, and that therefore a choice of acceptable food is impossible.

Careful attention to methodical feeding will accomplish more than simple direction to take good food, etc. The same precision which is exercised in ordering medicines will in the case of diet produce more positive results than are usually obtained.

4. A valuable auxiliary to the methodical application of pure air, exercise, and food may be found in the use of water upon the skin. I do not advocate cold baths for anæmic patients, nor indeed for any patient, except one suffering from an infectious fever. The abstraction of heat should be always avoided in anæmia. It is my custom to produce an artificial surface heat before applying cold water. If the latter is done just after rising from bed, it will in many cases be sufficient. While standing in a tub of water at 100°, the temperature of the room being not below 68°, the patient receives a rapid ablution with water at 70° which is daily reduced two or three degrees. After this he is rapidly dried and induced to go into the open air. In weaker patients the dry pack, which is simply a snug wrapping in a woolen blanket until they are warm, followed by ablution as here stated, is useful. The abstraction of heat must be guarded against and chilliness prevented.

When the cutaneous surface has thus been daily disciplined and educated to bear the shock from gradual impingement of cold water, larger quantities may be used: the dripping sheet, so highly commended by Weir Mitchell; the wet pack, followed by the half bath, and later rain baths and jet douches judiciously adapted to each case, offer the most valuable means for restoring the blood to its normal condition. Actual examination with Fleischl's hæmometer has convinced me of this therapeutic fact.

I am now treating a young lady who has taken six hundred Bland pills without the slightest effect. She has received twelve rain baths and is now steadily improving in color, strength, and ability to exercise without breathlessness. In a case referred to me last summer by Dr. T. G. Thomas the hæmoglobin percentage, which had been reduced to thirty-one per cent., was raised to one hundred per cent. under systematic douches and rain baths gradually reduced in temperature. There is no class of cases in

which a judicious hydrotherapy offers more pronounced results than in anæmia.

The rationale of its action is probably a stimulation of the nerve centers presiding over nutrition, a deepening of respiration, and invigoration of cardiac action, all of which may be observed clinically and by the aid of instruments of precision. The dilatation of the cutaneous vessels, which results after a thorough general douche, probably acts by what the Germans call "*Hautathmung*"—skin respiration.

5. *Depletion* is a method of treatment which, paradoxical as it may seem, has demonstrated its value clinically. Scholz, of Bremen, has recently written a monograph on this subject whose conclusions have been extensively reproduced in the medical journals. The dry, livid condition of the skin of anæmic patients is aroused to renewed activity by exposure to hot-air baths. Excretion is thus rendered more energetic, tissue change is enhanced, and an increase of appetite and nutrition is thus induced.

Repeated small bleedings for chlorosis was taught by Boerhaave, Hoffmann, and others, and has in recent times been advised by Dyes and Wilhelm. The latter reports thirty-one cases of chlorosis thus treated. Schubert reports the successful application of bleeding and diaphoresis. He bleeds fifteen to twenty drops for each two pounds of body weight. After the bleeding he advises rest in bed for twenty-four or forty-eight hours. While I have not yet tried venesection, it is my constant practice to order for anæmic patients one or more thorough diaphoretic (hot-air) baths a week, followed by gradually reduced douches, for the purpose of overcoming the spasmodic contraction of the arterioles, enhancing tissue change, and thus improving assimilation of albuminoids.

It is interesting to note that the existence of arterial spasms in chlorosis was noted as long ago as 1731 by Emmerich, who lays down the following therapeutic indications:

1. To remove the impure blood and the mixture of the juices.
2. To improve the tone of the stomach and intestines.
3. To restore those natural eliminations which are suppressed.
4. To remove the vascular spasm.

It may be observed that this shrewd physician had made the same observations with regard to arterial narrowing in anæmia and chlorosis which in recent times has been demonstrated scientifically by Virchow. May not diaphoresis and surface douching owe their value chiefly to the overcoming of the arterial spasm, just as in infectious fevers the same spasm is overcome by cold baths and frictions? Whatever the rationale may be, in my hands this treatment, together with systematic regulation of diet, exercise, and exposure to good air, has often been crowned with success after failure of medicinal agents. Let me not be understood, however, as undervaluing the latter. Iron especially, which was used long before its being a constituent of the blood was known, and has had the enthusiastic approval of clinicians like Niemeyer and Trousseau, is useful. I plead only against its indiscriminate use and against the idea that it is absorbed into the blood.

The chief aim of this paper, however, is to emphasize a more methodical application of non-medicinal remedies. If there is any point upon which we are derelict as a class, it is the lack of precision in our prescription of remedial measures, especially those valuable non-medicinal agencies which, as Nothnagel and more recently Osler have shown, are coming to the front as chief remedies. While there is no lack of insistence upon the systematic administration of medicines, while the regulation teaspoonful three times daily, or powder every three hours, is swallowed with the utmost punctuality, the patient suffering from anæmia or other chronic malady is allowed to drift along as best he may, taking his exercise, his diet, his airing, his rest, his bath, as pleases his sweet will or suits his personal convenience.

I plead for the more methodical application of these remedies in anæmia.

71 WEST SEVENTEETH STREET

## THE TECHNIQUE OF A LAPAROTOMY FOR MULTIOCLULAR OVARIAN CYST

COMPLICATED WITH PREGNANCY AT FIVE MONTHS.

RECOVERY.

By FRANK L. MCKEE, M. D.,

PLA MOUTH, PA.

On the afternoon of August 25, 1892, I was called to see Mrs. W. S., aged twenty-eight years, of slight build, weighing one hundred and fourteen pounds. Mrs. S. thought that she was pregnant, and wished me to verify her opinion. After carefully examining her by bimanual methods I located a hard mass that apparently grew from the left ovary; it was about the size of an ordinary man's fist. With a uterine sound passing into the womb it was quite easy to move the mass without moving the womb. Mrs. S. had continued to menstruate regularly, all positive symptoms of pregnancy were absent, the uterus was small and separate from the tumor, and the cervix was softened. I then assured the patient that she was all right and that her pregnancy (?) would go on to full term, fearing that if I told her the exact state of affairs she would go the rounds and I would lose the opportunity of performing a brilliant operation, which it has since proved to be. Mrs. S. proceeded to enlarge with great regularity and with fearful speed until the 17th of January, 1893, when I told her the condition she was in and assured her that unless she was operated on very soon she could not live. She, being a philosopher, demanded the operation be done forthwith then and there. I immediately proceeded to give general directions for her toilet preceding the operation—to wit, to bathe night and morning, to take a cathartic at bedtime, to restrict herself to liquid diet for forty-eight hours, to abstain from food on the day of operation, and to empty her bowels on the evening previous to operation. These conditions were carried out as directed.

On the afternoon of January 19, 1893, the patient was on the table in the dining-room of her home. Half a grain of sulphate of morphine and one fiftieth of a grain of atropine were injected hypodermically; the patient was then anesthetized and the abdomen thoroughly scrubbed with soap and water, then washed with sterilized water, then with a solution of bichloride of mercury 1 to 4,500, and again washed with sterilized water. An incision four inches long was made in the median line, commencing just below the umbilicus, deepened to

the peritoneum, and the same nicked and opened on a grooved director. No adhesions being found, the sac was punctured with a trocar and sixteen pints of fluid were drawn off in the usual manner, the assistant elevating the sac with a strong volsella forceps while counter-pressure was being made on the abdominal walls. The tumor was now drawn out of the abdominal incision and a Staffordshire knot was applied to its base. Strong double-brided silk was used for this purpose. The tumor was then separated at the base, which was exceedingly broad (it being at least seven inches in breadth), and dropped into the abdominal cavity. The pedicle, besides the one large cyst, contained two smaller and harder cysts with semi-fluid contents, which could easily be felt through the abdominal wall before the operation. In examining for other cysts a tumor was found on the left side of the womb, with walls as thin as tissue paper, which contained a semi-fluid mass. The uterus, which was very much enlarged, was sounded to ascertain if a communication existed with this "new development." Nothing of the kind being found, it was decided to puncture the cyst (?), which was done. It being utterly impossible to get any fluid through the tube or to diminish the size of the tumor, the cannula was withdrawn, and, to my immense disgust, there popped out of the opening made by the cannula the umbilical cord of a fetus.

A hurried consultation was held, and we decided to do the proper thing—to enlarge the uterine wound and enucleate the fetus and placenta. This was hurriedly done, after which the womb was stitched with the continuous catgut suture; the cervical canal was then dilated to its utmost capacity with a pair of powerful cervical dilators. The object in so dilating was to secure natural drainage, which we got. We now began to look around to ascertain where all the hæmorrhage was coming from. My chief assistant, Dr. H. L. Whitney, found it. Our Staffordshire knot had slipped. We then proceeded to purse-string suture the stump, which acted effectually and has never slipped. After being perfectly reassured that all hæmorrhage was under control, the abdominal cavity was flushed with several wash-pitcherfuls of sterilized water, the clots all washed out, and the abdominal wound closed with deep and superficial sutures, No. 7 silk being used for this purpose.

A liberal amount of iodoform was dusted over the line of sutures and ten-per-cent. iodoform gauze applied; then bichloride gauze, borated cotton, and a binder. The patient was put into bed just an hour after having been put on the table. Severe vomiting was the next unpleasant feature to be combated; cracked ice was used, small pieces being swallowed, but to no avail. I next tried wine of pepsin, one-drachm doses, iced every fifteen minutes. This preparation acted like a charm; whether it was the wine or the pepsin I am not prepared to state.

Nourishment consisted of beef juice, taken cold, for the first eighteen hours.

Typhoid developed on the third day, and was relieved by enemata of an emulsion of turpentine and asafœtida. The case progressed favorably from this time. The highest temperature was developed on the sixth day after the operation (100° F.), due to retained feces, the temperature remaining normal after the bowel was emptied. The patient was able to sit up in bed on the fourteenth day, and is now (March 19th), two months from the operation, going about doing light household duties. I neglected to mention that the stitches were removed from the abdominal wound on the seventh day; the cicatrix was perfect; no stitch abscesses.

All antiseptic precautions were observed in regard to instruments, hands, sponges, etc.

I am indebted to Dr. H. L. Whitney, Dr. J. P. Biehler, Dr.



L. H. Edwards, and Dr. G. W. McKee for valuable assistance in manipulating this case. The tumor and contents weighed just twenty-four pounds.

The unique feature of the case centers on the complication of pregnancy. Conception must have taken place very soon after my first examination on August 25, 1892; but the patient continued to menstruate during September and October; then menstruation ceased. (Remember, this fetus was seven inches long.) I again examined her and sounded the uterus, using considerable force in examining her. Also on the 17th of January her uterus was sounded (with both small-sized and large-sized sounds), at which time there was a gush of fluid, when Dr. Whitney remarked that "we must have punctured the tumor."

The extreme thinness of the left uterine wall can be explained by stating that the pressure exerted by the tumor on the left half of the uterus cut off nutrition and blood supply to that half of the organ, rendering the opposite side hypertrophic, which was very misleading.

I think I should have been justified in removing the fetus had not the uterine wall been punctured. The uterus had been sounded several times in examinations; it was as thin as the paper you are reading. The patient would have aborted surely; one good pain would have ruptured this thin-walled uterus, and my operation would have gone on record as another failure due to neglect or improper technique.

## A NEW INDUCTION COIL

FOR CURRENTS OF QUANTITY AND TENSION.\*

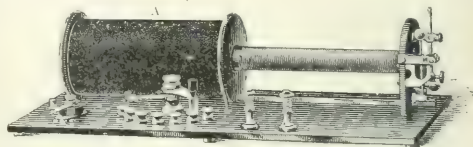
By A. D. ROCKWELL, M.D.

The importance of distinguishing between induced currents of quantity and those of tension, and of rightly adapting these various qualities of current to morbid conditions, is beginning to be appreciated. I long ago called attention to the very remarkable difference in the effects produced by induced currents of quantity and those of tension when applied through the skin and the mucous membrane of the body—or, in other words, through high and low resistances. Currents of quantity of a tension so low as to be almost if not quite imperceptible when applied through the external parts of the body powerfully affect both sensory and motor nerves when applied to internal surfaces, and, *per contra*, tension currents hardly appreciable when used internally become unbearable when used externally. In fact, the extraordinary action of seemingly weak induced currents of quantity when applied to low resisting surfaces will hardly be credited without actual demonstration. It is a very easy thing to demonstrate this fact unwittingly to the injury of the patient and to the operator's mortification.

An intravaginal or intra-uterine application is being made with the current of tension. The patient complains of an uncomfortable sensation which may or may not be due to the action of the current, and you shift the slide so as to exchange the current of great for one of lesser tension, which, according to all the experiences of external applica-

tion through the high resistance of the skin, is infinitely weaker.

Instantly a shock is occasioned, associated with the acutest pain and the most rigid contractions, that astonishes yourself and terrifies your patient—a mishap which I have known to excite neuralgia and other severe nervous symptoms of a distressing and more or less permanent character. It becomes, therefore, absolutely essential, in utilizing these currents of high tension and large quantity, that we be able to increase them by almost imperceptible gradations from zero to the maximum strength required. In what are termed the separate-coil apparatus (wound for high-tension currents) this is readily accomplished by a stationary primary coil over which are glided at will helices composed of wire of varying thickness and length. The continuous-coil apparatus as ordinarily constructed comprised in a single compact helix all the merits of the separate-coil apparatus with its various and cumbersome helices, with the single exception of an inability in the beginning to yield a sufficiently slight current, especially when the so-called quantity currents were used internally by the bipolar method. In the device which I have suggested and here present this difficulty has been successfully overcome by having a permanently fixed helix, A, with a movable primary coil, B.\*



The total length of the coil of this helix is 7,552 feet, with the following subdivisions: Six hundred and ninety-six feet of No. 21 wire tapped at 116 and 580 feet; 2,116 feet of No. 32 wire tapped at 783 and 1,335 feet; 4,740 feet of No. 36 wire tapped at 1,740 and 3,000 feet. The heavy coil of No. 16 wire has been discarded and the No. 21 coil so arranged as to yield a current equal to the No. 16. The merit of this arrangement consists of one's ability to use the whole 7,000 feet and more of wire, or to utilize at will each section of the coil with its subdivisions far more readily than when they are wound on separate spools, and at the same time to increase the current strength by imperceptible gradations from zero to the maximum.

So high is the resistance offered by the great length of wire in such a helix as this that a comparatively large electro-motive force is necessary to run it. Almost any form of cell can be used.

If any one of the sal ammoniac cells is used, it is a good idea, and one that I adopt, to combine them in multiple arcs of two each. In this way polarization takes place much less rapidly than when they are connected in simple series, and six cells are sufficient for any strength of current desired.

It is this insusceptibility of low resisting tissues to cur-

\* Read before the New York Neurological Society, May 2, 1893.

\* This coil was made for me by the Kidder Manufacturing Company.

rents of exceedingly high tension that renders this quality of current of so much value for the relief of pelvic pains of a non-inflammatory character, while the extraordinary readiness with which currents of large quantity and low tension affect these same tissues gives to them a special value in certain nutritional disturbances.

## EPITHELIOMA OF THE PENIS.

### AMPUTATION.

#### IMPLANTATION OF URETHRA THROUGH THE SCROTUM.

By HENRY W. SAWTELLE, M.D.,

SURGEON, U. S. MARINE HOSPITAL SERVICE.

This form of disease is occasionally met with among seafaring men. According to the annual reports of the United States Marine-Hospital Service for the five years ending June 30, 1891, there were 70,826 patients treated in hospitals, of whom seventy-three were returned as having epithelioma involving different regions of the body. In seven instances the penis was the seat of the lesion. This case presented the usual objective symptoms peculiar to the affection. The patient first noticed a small ulcer on the prepuce, which gradually advanced, and the glans penis soon became involved in the process of ulceration.

The subject was a large, robust-appearing seaman, aged sixty years, and a native of Maine. He was admitted to the Boston Marine Hospital December 3, 1891. He stated that the disease appeared about a year before, and that up to that time he had been a vigorous man. Upon inspection, the organ presented a foul, fungating sore of a cauliflower appearance. The characteristic odor was intensely offensive; penis greatly enlarged and nodular; prepuce tightly stretched over the mass and adherent; discharge ichorous though not profuse. Patient stated that within a short time there had been occasional slight hæmorrhages from the penis; one occurred a few hours after admission. There



was no marked glandular enlargement; no evidence of syphilis. Had been in a hospital for six weeks up to November, 1891. His features and conversation indicated great mental anxiety. The systemic treatment ordered consisted of the use of iron and quinine. On December 4, 1891, the day after admission, the penis was amputated at the upper third, the patient being under the influence of ether. Antiseptic precautions were observed during and after the operation. The stump did not heal, and soon the upper border of the scrotum became involved. The case demanding further surgical interference, the operation originally done and described by Humphrey in such cases was performed on January 18, 1892, with the assistance of Passed Assistant Surgeon P. C. Kalloch, the patient being under ether. The neoplasm of the scrotum was removed; the urethra was dissected out and about two centimetres of the end which was

infected excised. The urethra, which was now about ten centimetres in length, was then implanted in an opening made through the scrotum and stitched to the skin below. The remainder of the organ was then amputated just above the bifurcation of the corpora cavernosa. The parts healed by granulation, and the patient was discharged on February 24, 1892, feeling well and able to urinate without difficulty in the sitting posture.

The accompanying photograph, showing the parts after recovery from the operation, was taken the day before the patient left the hospital for his home in Maine. A small tube was inserted in the mouth of the urethra, which shows its new position in the figure.

A few days ago the writer was informed that the disease had not recurred and that the man was in good health.

U. S. MARINE HOSPITAL, PORT OF BOSTON, MASS., March, 1893.

## FRACTURE OF THE SKULL.

By Dr. L. PEEPLES, M.D.,

SAVANNAH, TEXAS.

P. S., of this city, aged ten years, received a severe fracture of the skull by the kick of a horse. The tip of the horse's foot came in contact with the anterior superior parietal bone, fracturing that portion over which the animal's foot covered completely, and wedging it securely beneath the frontal bone. This blow not only drove this piece of bone in the position of compression of the brain, but caused several other minor fractures. On reception of injury, the patient fell unconscious to the ground. Shortly afterward he was carried into his home, and soon revived with some general paresis and inequality of the pupils; no vomiting, and but little pain experienced. On examination, I saw what had to be done, and made preparations accordingly. The scalp was dissected away sufficiently to expose the wound. The trephine was then used and passed through both tables. The circular piece cut by the instrument was removed, and then the above piece was elevated and drawn out by means of a strong bone forceps; then with a rongeur the rough fragments were pared off; the dura mater was then thoroughly antiseptized, a drainage-tube introduced, and the wound closed. Every antiseptic precaution was taken throughout the entire operation. Immediately after arousing the patient fifteen grains of mild chloride of mercury were administered, and two more similar doses were given every two hours. Eight hours later an ounce of castor oil and ten drops of turpentine were administered. Heavy doses of quinine were given frequently. Next day he was put on large doses of potassium iodide and small doses of red iodide of mercury. Quinine continued, but not administered near the potassium iodide.

Occasionally the potassium iodide mixture would be stopped, and three more similar doses of calomel would be given. After the operation all signs of paralysis disappeared, very little fever followed, and pain only once or twice sufficient to cause the administration of opium. This injury was received June 14, 1892, and on the 30th of June, just sixteen days after the injury, the patient was out shooting marbles and contending in loud exclamations for each game. His health has been, and is still, splendid.

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**The Death of Dr. Ely McClellan, of the Medical Corps of the Army.**  
is reported to have taken place in Chicago on Monday, the 8th inst. Lieutenant-Colonel and Deputy Surgeon-General McClellan was conspicuous for his professional achievements with the army during the late civil war, and made many important contributions to the literature of military surgery.

THE

## NEW YORK MEDICAL JOURNAL,

*A Weekly Review of Medicine.*Published by  
D. APPLETON & CO.Edited by  
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, MAY 13, 1893.

## THE TREATMENT OF SPRAINED ANKLE.

Dr. V. P. GIBNEY, of the New York Polyclinic, offers, in the journal of that institution for January, some suggestions concerning the treatment of sprained ankle. For four years he has relied chiefly on the use of an adhesive-plaster supporting dressing, and he has had a success so nearly uniform and satisfactory that he has no inclination to exchange the method for any of the older ones. Dr. Gibney owns his indebtedness for the new method to a little book by Mr. Edward Cotterell, of the University College Hospital, London. It was not until the end of 1888 that the treatment advocated in the brochure was fully digested and put into use by Dr. Gibney. He had all through his previous surgical career looked upon a sprain as a kind of mystery "not always so bad as a fracture, but sometimes more tedious," requiring fomentations for a little while, then a fixed dressing of plaster of Paris or silicate of sodium, crutches perhaps, and rest and massage afterward. He had never been attracted toward these methods, and he had come to expect a "stiffish" joint in nearly every case that came under his charge.

His first case to be tried according to Cotterell's plan was that of a lady who had wrenched her right ankle severely. The usual external features of a sprain were present; no dislocation or fracture could be made out. Dr. Gibney first cut strips of rubber adhesive plaster about half an inch in width and long enough to completely encircle the foot. Then, with the foot well raised, he strapped it, the ankle, and the lower third of the leg with these strips, very much as if he had had an ulcer to treat. The first strip was carried over the outer side of the foot from near the base of the little toe. The second strip crossed the first, the third lapped over the first, the fourth overlapped the second, and so on, until at the conclusion he had practically constructed a Scultetus's bandage of adhesive strips extending far enough to include the lower third of the limb. Over this he placed a cheese-cloth bandage to help the plaster strips to adhere to one another and to make the dressing more tidy. The patient was told to put on her stocking and shoe and to walk about the room. The walking was accomplished with some diffidence, but with no real difficulty. She was made to walk the next day and went out shopping without any bad results. The recovery was without relapse, and the usefulness of the ankle-joint was unimpaired.

This plan of treatment has been used by Dr. Gibney and his assistants in their hospital service, as well as in private practice. Not a few medical friends of his have followed his example in the employment of what he terms the "modern treatment of sprained ankles," and their reports are uniformly

in praise of the method; he does not recall that any of them has made an adverse report. This plan of treatment has the advantage of entailing the minimum amount of enforced detention from the ordinary pursuits of life, and does not tend to leave a stiffened joint.

## THE HYSTERICAL BLUE OEDEMA OF CHARCOT.

ABOUT three years ago Charcot first called attention to a rare form of hysterical oedema with blueness, to which he gave the name of *oedème bleu des hystériques*. We find in the *Brooklyn Medical Journal* for April an account by Dr. Shaw and Dr. Duryea of a case marked by rare if not unique conditions. The patient was a young and highly hysterical woman. According to her own history of her case, she had received a blow on her left breast while being rescued from drowning, and in a few days after the rescue she had begun to have convulsions. These seizures had averaged two a week for a time, and during that time the left breast had increased in size and become so painful that an incision had been made into it in the expectation of finding pus, but, according to the surgeon of the hospital where the patient had been, no pus had been found.

When the patient came under the authors' observation, in April, 1892, the breast was enlarged, somewhat pendulous, soft, cedematous, and rather cyanotic. It was also intensely hyperæsthetic. There was blue oedema of the left hand and forearm, with coldness. The hyperæsthesia extended from below the breast to the shoulder, and a similar area existed over the left scapular region. There were also considerable areas of anæsthesia on the left side, limited to the anterior aspect of the extremities. She had numerous convulsive attacks and other hysterical manifestations.

Dr. A. J. C. Skene was consulted in reference to the state of her pelvic organs, and he reported that they were free from disease.

The authors state that oedema, as a symptom of hysteria, comes under the observation of the profession at large so rarely as to be almost unknown, although it has been mentioned by a number of authors from the time of Sydenham down to the present. It is almost always associated with convulsive manifestations or with stigmata; it comes on suddenly and without any known physical cause; the affected part is generally white, and does not pit on pressure. The blue oedema of Charcot is accompanied by a subnormal temperature of the part. So far as the writers have learned, this cyanotic form has hitherto been reported as limited to the extremities, either an arm or a leg, oftener the former, and it has been unilateral. The paper is illustrated by diagrams that assist in understanding the situation of the various vaso-motor disturbances in this interesting and possibly unique case.

## MINOR PARAGRAPHS.

## A LESSON IN ANTISEPSIS.

THE scene occurred in one of the most prominent of our New York hospitals, the time of action was within the last five



years, and the *dramatis personæ* were a patient who was to have a portion of his cerebral cortex removed, one of the best of New York surgeons, a prominent neurologist, assistants, visitors, and students. The surgeon had deftly and carefully removed the bone and made a flap in the meninges, and the neurologist was about to decide the location of the cortical center. Turning on the current of his battery, he applied the electrodes to his tongue to determine the strength of the current, and was about to transfer the electrodes to the cortex when the surgeon, who had watched this method of current-testing with evident concern, arrested the neurologist's hand, saying at the same time that the electrodes must be disinfected over again after contact with his mouth. The disinfection of the instrument being completed, the neurologist confirmed the location of the center, and the surgeon prepared to complete his work. As he took his stool to resume the use of the knife he found that the light was insufficient; rising, he caught hold of the gas fixture placed above the operating-table, pulled it down over the field of work, placed his stool in a little more convenient position, and, forgetting to disinfect his hands, proceeded with the operation. The note caused by the neurologist's *gaucherie* had been removed, but the beam of the surgeon's forgetfulness resulted in the death of the patient in consequence of suppurative meningitis.

#### SOME POINTS IN TERMINOLOGY.

OUR esteemed contemporary, the *Medical Record*, criticises the author of the Academy of Medicine's announcement for allowing an author to use the word *symphysiotomy* instead of *symphysectomy*. As the *Record* correctly remarks, the genitive of *σύνφυσις* is *συνφύσεως*, and it implies from that fact that the epsilon ought to be represented in an English derivative of the word. While we are not ready to say that *symphysiotomy* is not the preferable form of the word, we can not admit the cogency of the *Record's* argument, for the epsilon is simply a part of the genitive termination, and not a part of the stem. Such Greek words in *-is* take *-iv* in the accusative, for example; moreover, *σύνφυσις* is only a compound of *φύσις*, and must be as free as that word in the formation of further compounds; and, with such classical compounds of *φύσις* before us as *φωσιολογία* (and none that we can find in *-es*), we are unable to see that *symphysiotomy* is inadmissible. While we are on this subject, we may express our wonder that the same journal, in the same issue, heads an editorial article "Tracheology—a New Specialty." At first we supposed that the author had been the victim of a printer's error, but in the text of the article we find the word "tracheologists." Does not our contemporary mean *tracheology* and *tracheologists*—from *τράχηλος*, the neck?

#### TRAINED NURSES' WAGES.

ONE of the best-known New York physicians writes to us as follows:

"For several weeks one of my servants has been very ill, and I employed to care for her a trained nurse. Last week her condition was such as to require two nurses, and Mrs. P., from the bureau of a Mrs. T. (there is a 'power behind the throne' whose name does not appear), employed a woman recommended highly by the manager. At the end of a week I was asked to pay \$30 as the 'usual' compensation, and an extra \$5 (in all \$35), because she had done 'night service.' She went on duty at 8 P.M.; went off at 8 A.M. Is this right? True, no specific arrangement was made as to compensation, therefore no contract was violated; but is there no fixed charge for trained nurses? If they can demand \$30, why not \$40, etc.?"

"On Mrs. P.'s expressing surprise at the charge, she was met by the statement that she (the nurse) 'did not consider herself an ordinary trained nurse.' The case, however, was one of no special requirement as regarded skill in nursing. Several members of the profession to whom I have spoken of it regard the charge as extortionate, 'entirely improper.' One nurse, on the other hand, told me she could not see why physicians should fix *nurses'* charges any more than nurses should fix the fees of physicians. Shade of *Æsculapius*, what next?"

#### THE NEW SURGEON GENERAL OF THE NAVY.

THE retirement, for age, of Surgeon-General J. Mills Browne on the 11th inst. has caused the promotion of Medical Inspector J. Rufus Tryon to the office of surgeon general of the navy. Dr. Tryon is at present attached to the flag ship "Chicago" as fleet surgeon. He is a native of New York, entered the medical corps of the navy in 1863, and served in the West Gulf squadron until 1865, when he was ordered to the naval hospital at Boston. He served with the Asiatic squadron from 1870 to 1873, and from the latter year until 1876 he was on special duty at Pensacola in connection with the yellow-fever epidemics at that point. He has been on duty at New York and Philadelphia, and with the Pacific and European squadrons. Professionally and personally Dr. Tryon is a most interesting companion, and his administration will doubtless redound to the credit of the Bureau of Medicine and Surgery.

#### THE CONDITION OF THE TEETH AS AN INDEX OF THE GENERAL STATE OF HEALTH.

IN the *Lancet* for April 8th there is a letter from J. Leon Williams, D. D. S., L. D. S., of London, in which the belief is stated that it is erroneous to look upon the condition of the teeth as expressive of the general state of health. Every observant dentist, the writer says, is familiar with the fact that many persons of mature years have excellent teeth although they have perhaps never had perfect health and have comparatively low powers of endurance, while, on the other hand, many otherwise vigorous and healthy persons have teeth that are poor in structure and decay rapidly. Of course, he adds, early loss of the teeth may lead to serious impairment of the health.

#### GALLANOL IN THE TREATMENT OF PSORIASIS AND ECZEMA.

AT the recent annual meeting of the French Society of Dermatology and Syphilography, according to the report in *Progrès médical* for April 22d, Dr. Cazeneuve and Dr. E. Rollet, of Lyons, made known the results that they had obtained in the treatment of psoriasis and eczema by means of gallanol. This body, isolated by them in a state of purity from gallic acid, acts powerfully upon the skin as a reducing agent. In psoriasis, the affected part is painted with a ten-per-cent. solution, and the layer is covered with traumaticine. After a very short time the psoriasis is found to have disappeared. In chronic eczema, a ten-per-cent. or twenty-five-per-cent. ointment causes the itching to subside and brings about a prompt cure.

#### A NEW MEDICAL ENCYCLOPEDIA.

WE have received the first number of a new *Bibliothek der gesammten medicinischen Wissenschaften*, edited by Professor A. Drasche, of Vienna, with the collaboration of a large corps of writers, and published in Vienna and Leipzig. The number consists of forty-eight pages, and it is announced that the entire

work will comprise from eight to ten volumes of from fifteen to twenty numbers each. The first number gives us the impression that the work will prove to be one of great value.

#### BREAD IN THE DIABETIC'S DIETARY.

At a recent meeting of the Berlin Balneological Society Dr. A. Källay, of Karlsbad, read an instructive paper on Diabetes Mellitus which has been published in the *Wiener medizinische Wochenschrift*. Speaking of the matter of diet, the author expressed doubt as to the value of the various substitutes for wheat bread, such as bran bread, almond bread, and aleurone bread, and gave it as his opinion that from two to four ounces of ordinary bread daily was absolutely harmless to a diabetic.

#### THE GOVERNOR'S VETO OF THE EPILEPTIC-COLONY BILL.

It is to be regretted, we think, that the Governor of the State of New York has felt constrained to withhold his approval of the bill to establish an epileptic colony in the State. The document in which he gives his decision recounts the great outlay that the State has already made in establishing charitable institutions and in maintaining them, and bases his hesitation to sign the bill mainly on considerations of economy.

#### THE BUCHANAN MURDER TRIAL.

The prisoner's conviction in this case seems to show that the peculiar style of cross-examination introduced by one of the counsel for the defense does not seriously befog decent jurymen, however much it may bore and weary them. We are unable to see that on any material point the medical testimony against the accused was shaken.

#### BENZONAPHTHOL AS AN INTESTINAL ANTISEPTIC.

In the *Union médicale* for April 16th we find a formula for the preparation of wafers each containing three grains of benzonaphthol and a grain and a half each of poplar charcoal and magnesia. Four wafers are to be given in the course of a day, one just before eating and one about an hour after the meal.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 9, 1893:

DISEASES.	Week ending May 2		Week ending May 9.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	10	10	10	8
Typhoid fever.....	6	5	14	3
Scarlet fever.....	196	18	168	23
Cerebro-spinal meningitis.....	11	7	15	11
Measles.....	135	10	180	7
Diphtheria.....	106	31	123	34
Small-pox.....	4	2	11	1

**The Association of the Alumni of St. Luke's Hospital.**—About forty members of the association were present at the annual dinner, at the Savoy, last Monday evening. Dr. Robert Abbe was toastmaster. The toast "St. Luke's Hospital" was responded to by Mr. Charles Russell, of the board of managers; that of "The Executive," by the Rev. George S. Baker, D. D.; that of "The Medical Board," by Dr. L. Bolton Bangs; that of "Our Sister Societies," by Dr. George F. Shady, of the New York Hospital Alumni, and Dr. D. Bryson Delavan, of the Charity Hospital Alumni; and that of "The Ex-Interns," by Dr. W. K. Otis. The

oldest alumnus present was Dr. W. H. Carmalt, of New Haven. About ten years ago the Association of the Ex-Interns of St. Luke's Hospital had a brief and not very eventful career, and the attempt this spring to reanimate its ashes has resulted in the formation of the present society, which differs in several ways from its predecessor. All ex-interns of St. Luke's Hospital of New York city are eligible to membership. It meets on the second Tuesdays of November, January, and March for the discussion of scientific subjects, on the second Tuesday in April for business, and annually at dinner. Its officers are: Dr. A. A. Davis, president; Dr. W. H. Caswell, vice-president; Dr. L. F. Warner, secretary; and Dr. V. H. Norrie, treasurer.

**Bellevue Hospital Medical College.**—At the recent annual meeting of the faculty the following changes and appointments were made: The title of Dr. H. M. Biggs's chair was made materia medica and therapeutics, diseases of the nervous system, and clinical medicine. The title of Dr. H. D. Noyes's chair was made ophthalmology, instead of ophthalmology and otology. The title of Dr. Samuel Alexander's chair was made genito-urinary surgery and syphilis. The title of Dr. G. H. Dunham's chair was made pathological anatomy, bacteriology, and hygiene. Dr. Edward B. Dench was appointed professor of otology for the regular session. Dr. John A. Fordyce was appointed professor of dermatology and syphilology for the regular session. Dr. David H. McAlpin, Jr., was appointed professor of histology and demonstrator of pathological anatomy for the regular session. Dr. Austin Flint, Jr., was appointed adjunct professor of obstetrics for the regular session.

**The Health of Dr. Francis P. Kinnicutt.**—Last Saturday Dr. Kinnicutt was suddenly attacked with symptoms that suggested perforation of the vermiform appendix, and on the evening of that day he was operated upon. We learn that no perforation was found, but that the appendix was removed and found to be affected with catarrhal inflammation. On Sunday and Monday the patient's condition was such as to give rise to grave apprehension, but our present information is to the effect that his progress since that time has been thoroughly satisfactory, and we are very glad to be able to say, that little if any doubt is now felt of his prompt and perfect recovery.

**The Medical and Surgical Society of Baltimore.**—The 757th regular meeting was held on Thursday evening, the 11th inst. Papers had been announced as follows: The Care and Treatment of the Nipples and Breasts of the Pregnant and Puerperal Woman, by Dr. Wilmer Brinton; and A Case of Post-diphtheritic Paralysis of both External Recti Muscles, by Dr. Harry Friedenwald.

**The Medical Society of the County of Kings** has received legal authority to hold real estate to the value of \$100,000, and to fix the rate of annual dues of membership at \$10. The growth of the library has been such as to demand more space, and the value of the collection seems to require that it shall be housed within fireproof walls.

**The University of Vienna.**—The *Lancet* states that Professor Krafft-Ebing has been promoted from the second to the first chair of psychiatry and neurology, and that Professor Wernicke, of Breslau, has been appointed to succeed him in the second chair.

**Grandin and Gunning's Electricity in Gynaecology.**—It is announced in the May number of the *American Journal of Obstetrics* that the *Treatise on Electricity in Gynaecology*, by Dr. Egbert H. Grandin and Dr. J. H. Gunning, has been translated into Spanish by Dr. Ramon Martin Gil and published in Spain.

**The Presbyterian Hospital.**—The new operating pavilion was opened to inspection by an invited company on Monday afternoon, the 8th inst.

**The University of Buffalo.**—On the 2d inst. commencement exercises were held in the departments of medicine (forty-nine in the graduating class), of pharmacy, and of dentistry. Dr. Paul F. Mundé delivered an address on the subject of Specialism in Medicine.

**Changes of Address.**—Dr. W. H. Bates, to No. 156 Montague Street, Brooklyn; Dr. Louise Fiske Bryson, to No. 56 West Forty-sixth Street; Dr. H. N. Vineberg, to No. 127 East Sixty-first Street; Dr. J. Van Doren Young, to No. 108 West Seventy-fifth Street.

**Columbia College.**—It is reported that the trustees have decided to make the course in the medical school (the College of Physicians and Surgeons) one of four years instead of three.

**Typhus Fever in Paris.**—According to the *Union Médicale* for April 11th, typhus was then epidemic in Paris. There were cases in several of the hospitals, notably the Hôtel-Dieu and the Charité.

**The Death of Dr. Rufus W. Mathewson, of Durham, Connecticut,** is announced. Dr. Mathewson had for many years been a well-known and highly respected practitioner.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 30 to May 1, 1899:*

A Board of medical officers, to consist of STERNBERG, GEORGE M., Lieutenant Colonel and Deputy Surgeon General, WOLVERTON, WILLIAM D., Lieutenant Colonel and Deputy Surgeon General, and GIBSON, JOSEPH R., Major and Surgeon, is appointed to meet at West Point, N. Y., June 1, 1899, or as soon thereafter as practicable, for the physical examination of the cadets of the graduating class of the U. S. Military Academy, and such other cadets of the academy and candidates for admission thereto as may be ordered before it.

JANEWAY, JOHN H., Major and Surgeon, is, by direction of the Acting Secretary of War, granted leave of absence for three months and fourteen days.

TURRILL, HENRY S., Captain and Assistant Surgeon, is ordered to report in person to the president of the Examining Board at Omaha, Nebraska, for examination, with a view to determine his fitness for promotion, as contemplated by the act of Congress approved October 1, 1890.

ALEXANDER, CHARLES T., Colonel and Assistant Surgeon General, is detailed as a member of the Army Medical Board, vice ALDEN, CHARLES H., Colonel and Assistant Surgeon General, hereby relieved.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending May 6, 1899:*

FIELD, JAMES G., Assistant Surgeon. Ordered to examination preliminary to promotion.

#### Society Meetings for the Coming Week:

**MONDAY, May 15th:** New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, May 16th:** American Gynecological Society (first day—Philadelphia); Illinois State Medical Society (first day—Chicago); New York Academy of Medicine (Section in Theory and Practice of Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and St. Lawrence (annual), N. Y.; Ogdensburgh Medical Association; Hampshire, Mass., District Medical Society (annual—Springfield); Baltimore Academy of Medicine.

**WEDNESDAY, May 17th:** American Gynecological Society (second day); Illinois State Medical Society (second day); New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; New Jersey Academy of Medicine (Newark).

**THURSDAY, May 18th:** American Gynecological Society (third day); Illinois State Medical Society (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

**FRIDAY, May 19th:** New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

**SATURDAY, May 20th:** Clinical Society of the New York Post-graduate Medical School and Hospital.

#### Answers to Correspondents:

**No. 404.**—Appointments to the position of acting assistant surgeon in the Marine-Hospital Service are subject to the discretion of the Secretary of the Treasury for the time being. We believe that the faithful and efficient discharge of the duties outweighs political considerations in settling the question of a man's retention or dismissal.

## Letters to the Editor.

### PRENATAL MEASLES.

CHICAGO, April 3, 1899.

To the Editor of the New York Medical Journal:

SIR: In the Journal of April 1st I noted a report of prenatal measles in which the fetus showed "spots" of eruption. In 1882 I was called to a woman in confinement. On arriving at the house I found the child just born. It was an eight-months child. The mother was then in the stage of full eruption of an active attack of measles. The child's body was covered with as severe a rash of measles as I ever witnessed. Every inch of its little body was as red as a beet, and the eruption was as distinct as it was on the mother. The labor was premature and the measles eruption no doubt induced endometritis and consequent expulsion of the child. So in this case prenatal measles, contracted from the mother, was a plain fact. So far as I was informed, both mother and child recovered without any untoward events.

F. BYRON ROBINSON, M. D.

### WOUNDS WITHOUT INJURY TO OVERLYING CLOTHING.

CUBA LANDING, TEX., April 10, 1899.

To the Editor of the New York Medical Journal:

SIR: I see mentioned in the Journal for February 25th a case of a lacerated wound resembling a stab wound without injury to clothing, together with the case of Dr. Wagner of March 11th. This causes me to report the case of J. B., who was sent to a neighbor's house in haste, was running down hill, and fell upon his right side, the right knee striking a rock. He severed the integument for about an inch in length just beneath the patella, but he did not even know there was anything wrong until he had reached his journey's end. However, the injury proved to give considerable trouble before the wound was healed. Search was made for injury to the clothing, but none could be found.

J. N. SMITH, M. D.

### A LONG-LIVED FAMILY.

SPOKANE, WASH., April 18, 1899.

To the Editor of the New York Medical Journal:

SIR: The following family history will be of interest to life-insurance examiners. Applicant, aged thirty, is the eldest of a family of nine children, all living and in good health. Applicant's father living, aged sixty-four, in good health; applicant's mother living, aged fifty-four, in good health; applicant's father's father dead, aged eighty-eight, cause unknown; applicant's father's mother dead, aged seventy-seven, cause unknown; applicant's mother's father living, aged ninety-four, in good health; applicant's mother's mother living, aged ninety, in good health.

Three of his great-grandparents are living, the youngest being one hundred and five, and all in fair health.

D. C. NEWMAN, M. D.

### THE NEW YORK STATE EXAMINATION.

NEW YORK, May 4, 1899.

To the Editor of the New York Medical Journal:

SIR: Some time ago the Regents of the University of the State of New York agreed to demand from every student of medicine about to practice in this State some evidences of his fitness for his work, and therefore established a State examination.

The ground to be covered by the student in this examination



was to be determined by the State medical societies, all three schools being represented.

When the matter was brought before the State medical societies of the three schools it was referred to a committee, which committee drew up for the use of the regents a medical syllabus, the purpose of which is specified to be "for the guidance of candidates as to the topics covered by the examinations required for a license to practice medicine and surgery in New York State." This medical syllabus was published in Albany in October, 1892. It is stated upon the cover that it is prepared under the direction of the State boards of medical examiners by Dr. George R. Fowler and Dr. Maurice J. Lewi, representing the Medical Society of the State of New York; Dr. William S. Searle and Dr. John McE. Wetmore, representing the Homoeopathic Medical Society of the State of New York; and Dr. Edwin S. Moore and Dr. William L. Tuttle, representing the Eclectic Medical Society of the State of New York.

In reading this bulletin I find the following statement under the head *Diseases of the Nervous System, including diseases of the brain, spinal cord, and functional nervous diseases*:

Diseases of the brain: Cerebral hyperemia (active or passive); cerebral anæmia; meningitis; cerebral thrombosis and embolism; cerebral softening; cerebral apoplexy; abscesses of the brain; cerebral tumors; sclerosis of the brain; hypertrophy of the brain.

Diseases of the spinal cord and its meninges: Spinal hyperemia; spinal meningitis; acute myelitis; chronic myelitis; non-inflammatory softening; acute bulbar paralysis; infantile spinal paralysis; acute spinal paralysis of adults; chronic anterior myelitis; progressive muscular atrophy; cerebro spinal sclerosis; locomotor ataxia; spasmodic tabes dorsalis; amyotrophic lateral sclerosis; pseudo-hypertrophic paralysis; spinal apoplexy.

Functional diseases of the nervous system: Epilepsy; hysteria; hystero-epilepsy; catalepsy; chorea; sunstroke; tetanus; facial paralysis; paralysis agitans; chronic lead poisoning; chronic mercurialism; vertigo; neuralgia; migraine; eclampsia; sickness.

I desire to call attention to this syllabus and to make certain criticisms upon it. The titles of the diseases used throughout indicate a standpoint of about thirty years ago. At the present time it is pretty well agreed that cerebral hyperemia and anæmia are not to be considered as diseases any more than dropsy or dyspnœa. They are conditions secondary to other pathological states. Cerebral apoplexy is also a condition no longer described as a disease in itself, but considered in every modern text-book under the heading of thrombosis and embolism or hæmorrhage. Cerebral softening is also to be considered as a result of one of the three conditions just named or else as the result of meningo encephalitis. Hypertrophy of the brain does not exist. Sclerosis of the brain is a term which I do not understand, there being no general sclerosis, but several forms of multiple disseminated sclerosis. It will therefore be noticed that six out of ten conditions mentioned under diseases of the brain would not be recognized as diseases by the students who have received the current instruction in nervous diseases.

The same criticism applies to the diseases of the spinal cord. Just what the examiners intend to convey by the terms non-inflammatory softening, acute spinal paralysis of adults, spasmodic tabes dorsalis, I do not know. Pathologists do not recognize "non-inflammatory softening."

Since acute myelitis, chronic anterior myelitis, and spinal apoplexy (by which latter term I suppose spinal hæmorrhage is indicated) are mentioned, I am at a loss to know what condition is intended by the term acute spinal paralysis of adults, unless pos-

sibly Landry's paralysis is indicated, which is not a spinal disease, but one of the peripheral nerves. As to "spasmodic tabes dorsalis," I suppose the group of symptoms is intended which is now described under the three pathological conditions of lateral sclerosis, descending degeneration, and combined sclerosis. The authors of the syllabus appear to be ignorant of the fact that this term was abandoned twenty-five years ago, when the pathology of the symptoms indicated by the term "spasmodic" began to be understood.

Why progressive muscular atrophy and pseudo-hypertrophic paralysis, now known to be purely muscular diseases without spinal-cord lesion, should be classified under the diseases of the spinal cord is a mystery.

The entire absence of any questions regarding localization of cerebral and spinal functions is another indication of the medieval standpoint of the authors.

Under "functional diseases" of the nervous system I noticed facial paralysis and sunstroke, both of which are supposed to have a well-known pathological basis. Multiple neuritis seems to be beyond the neurological horizon of the authors, while vertigo and eclampsia, both of them symptoms and not diseases, have attracted their attention.

It is quite evident from this review that a student instructed in the modern pathology and terminology of nervous diseases, or preparing for his examination with the aid of the text-books of Dana, Gray, or Gowers, or even with the general works of Osler or Strümpell, would be sadly at a loss to know what was indicated by questions based upon this syllabus.

This criticism is intended as a comment upon the policy adopted by the State medical societies of placing this subject of examination in the hands of members who are not professors in any college or engaged in teaching medicine, and who are manifestly about twenty years behind the present standpoint.

I have referred this syllabus to several gentlemen, professors in various medical colleges of this city, and I find that an equally scathing criticism can be made of almost every section of this syllabus with the exception of that on anatomy.

The first step toward any reform necessarily comes by criticism of existing methods. In the foregoing I have no personal animus, as I am not acquainted either personally or by reputation with any of the members of the State board of medical examiners. But I desire that the students whom I teach should be able to pass a fair examination, and I do not care to be obliged to even mention to them names and diseases long since discarded.

M. ALLEN STARR, M. D.

## Book Notices.

*Handbook of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Nasopharynx.* By CARL SEILER, M. D. Fourth Edition. Philadelphia: Lea Brothers & Co., 1893. Pp. xii+412.

THOUGH the three preceding editions of Dr. Seiler's book have made it familiar to the greater number of those interested in laryngology, and though the favorable impression created by it renders a complete review of the fourth edition uncalled for, yet we may briefly comment upon it. Though the work aims at brevity and conciseness, and though much—in fact, almost all—that is theoretical has been omitted, yet thereby has the work gained in practical value and interest. Complete, in an exhaustive sense, it certainly is not; and yet in a more practical sense, and particularly from the therapeutic standpoint, its lack

of completeness is of the greatest value, since it casts aside the chaff and preserves the wheat, presenting it, moreover, in well-arranged, concise, and, what is still more unusual, exceedingly readable form.

Certain new features appear in this edition, and of these by far the best is the chapter on intranasal neoplasms, which, though brief, is yet sufficient, and gains rather than loses by that brevity. Another new chapter is on influenza and what the writer calls "American gripe." The wisdom of this introduction we must question, for influenza surely is not a disease of the upper respiratory passages alone. Moreover, it was this reason which led the author to omit diphtheria from his treatise, for in the preface to the first edition he says: "Several affections which are classed among systemic diseases and merely exhibit severe laryngeal symptoms, such as scarlet fever, diphtheria, etc., have been omitted, since they do not strictly belong to maladies of the throat." The handling of this subject, we think, might better be left to the general practitioner, to whom it more properly belongs, and indeed the matter shows too much the specialist and does not gain thereby.

The size of the volume is most convenient, and the book-making excellent.

#### *Diseases of the Skin.* A Manual for Students and Practitioners.

By CHARLES C. RANSOM, M.D., Assistant Dermatologist, Vanderbilt Clinic, New York. Series edited by BERN B. GALLAUDET, M.D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York. Philadelphia: Lea Brothers & Co., 1893. Pp. 6-17 to 201. [*The Students' Quiz Series.*]

It can scarcely be intended that this little volume should serve as a substitute for the text-books on dermatology, and perhaps it might have been better to omit from the title-page the statement that it was a manual for practitioners. As a concisely arranged work presenting certain salient points in dermatology it may be of value to the student during his class work, but the practitioner that would be satisfied with the information it contains, judiciously selected as it may be, would be content rather with the semblance than with the substance of information. We should not condemn the work because it refers to but four varieties of acne, to but three of alopecia, or to but four of herpes, but from this necessary restriction of the consideration of other than the more important varieties of a disease the character of the condensation may be judged. In fact, the author is to be congratulated on getting as much material as he has got into the book. The index would have been more serviceable if more complete.

#### BOOKS, ETC., RECEIVED.

The Recrudescence of Leprosy and its Causation. A Popular Treatise. By William Tebb. With an Appendix. London: Swan, Sonnenschein & Co., 1893. Pp. 20-21 to 412.

Atlas of Electric Cystoscopy. By Dr. Emil Burkhardt, late Assistant Surgeon to the Surgical Clinic of the University of Bale, and E. Hurry Fenwick, F. R. C. S. Eng., Surgeon to the London Hospital, etc. With 34 Colored Plates, embracing 83 Figures. London: J. & A. Churchill, 1893. Pp. 70. [Price, 21 shillings.]

Remarkable Sequence of Operation for Necrosis at Base of Skull; a New Method of Resecting the Third Branch of the Fifth Nerve. By G. Lenox Curtis, M. D., of New York. [Reprinted from the *Journal of the American Medical Association.*]

Clinical Cases of Edema of the Larynx in Children. By J. W. Robertson, M. D., Litchfield, Minn. [Reprinted from the *Northwestern Lancet.*]

Two Cases of a Peculiar Type of Primary Crural Asymmetry. By Henry Ling Taylor, M. D., New York. [Reprinted from the *University Medical Magazine.*]

Remarks on the Management of Suppuration complicating Tuberculous Disease of the Bones and Joints. By Henry Ling Taylor, M. D., New York. [Reprinted from the *Annals of Surgery.*]

Symphysiotomy, with the Report of a Successful Case. By Henry J. Garrigues, M. D., New York. [Reprinted from the *American Journal of the Medical Sciences.*]

Osteitis Deformans (Paget), with Report of Two Cases. By Henry Ling Taylor, M. D., New York. [Reprinted from the *Medical Record.*]

Surgical Dressings, Aseptic and Antiseptic. By Seward W. Williams, Ph. C., F. C. S. [Reprinted from the *Pharmaceutical Record.*]

Character, the True Test of the Physician. By J. W. Long, M. D., Randleman, N. C. [Reprinted from the *Maryland Medical Journal.*]

Cholera. By E. R. Axtell, M. D., Denver, Col. [Reprinted from the *Denver Medical Times.*]

## Reports on the Progress of Medicine.

### GYNÆCOLOGY.

By ANDREW F. CURRIER, M.D.

The Relations of the Mucous Membrane in Atresia and Deformity of the Genitals, also the Subject of Tubal Menstruation (Landau and Rheinstein, *Contrib. f. Gyn.*, 1893, No. 1).—The following cases were under investigation:

1. One in which there was complete absence of the vagina, normal uterus without hæmatometra, double hæmatosalpinx.
2. One in which there was a transverse septum of the vagina in its upper segment, hæmatometra, double hæmatosalpinx.
3. One in which there were multiple fibroids of the uterus in a nullipara forty-three years old, hæmatosalpinx of the right side.
4. Double uterus with atresia of the right half, hæmatometra of the right side, hæmatosalpinx.

The preparations in the first and third cases were obtained by abdominal section; the others were post-mortem specimens and were very carefully examined. In three of the cases it was found that the tube was actually concerned in menstruation, and was not filled with blood by reflux from the uterus. The conclusions of the authors with reference to these investigations are that in deformities of the genital organs, whether atresia or double formations, the mucous membrane is normally disposed in all portions of the genital tract. The uterine mucous membrane is eventually destroyed, pressure atrophy resulting from the retained menstrual secretion. The corporeal mucous membrane is capable of withstanding degenerative changes for a long time. The tubal mucous membrane possesses at first a great absorptive capacity which is at length exhausted as the destructive effects of pressure are continued.

Aside from the intrinsic importance of these investigations by Landau and Rheinstein, their suggestiveness in a field of unusual interest is very great. Medical literature is at present flooded with accounts of cases of so-called tubal gestation. Nature certainly does make mistakes in the work which she has to perform in gestation, but if the proportion of mistakes is as large as these reports would have us believe, she had better go out of the business and let us have an era in which there would be a

little more regard for uniformity in a matter of such supreme importance. There are many cases in which the clinical symptoms suggest ectopic gestation, cases in which evidences of internal hæmorrhage are marked, cases of prolonged intermenstrual interval, cases with well-marked tubal tumor. These cases demand prompt treatment by abdominal section, but the evidence of gestation is not complete by the finding of blood clot in the pelvis or even in the distended tube. Hæmatosalpinx, as these cases show, is not necessarily associated with gestation; it may be an accompaniment of menstruation. Yet other cases are associated with a history of falls or bruises, and there may or may not be an accompanying hæmatoma of the ovary or broad ligament.

Another important point to which we have as yet seen no reference in this connection is the very unfortunate position in which single and perfectly virtuous young women may be placed by assuming that all hæmatoma or hæmatoceles of the pelvis are *prima facie* evidence of impregnation. History repeats itself; it is the same possibility which was faced many times in the early history of ovariectomy, when many young women went to their graves with a cloud of unjust suspicion or open condemnation hanging over them. It would be a good plan if all gynecologists were as frank with their doubtful cases as a member of the New York Obstetrical Society, who recently reported six cases in which the temptation to pronounce them cases of ectopic gestation was great, but honesty and the microscope forbade it. In the absence of a fetus or very decided microscopic evidence of tubal gestation, let us pause before making up our series of cases for publication.

**The Pathology of the Uterine Mucous Membrane** (Uter, *Ztsch. f. Geb. u. Gyn.*, xxv, 2).—The author's investigations were made upon material obtained by curettage in cases of abortion, gonorrhœa, chronic endometritis, uterine myomata, and malignant degeneration.

In cases of abortion the presence of decidua cells is usually considered necessary to the determination of a diagnosis, but the author points out that they may be absent on account of rapid changes within the first few days after expulsion of the ovum, or the specimen examined may have been removed from a portion of the uterus in which, in the early portion of pregnancy, decidua cells are not found. On the other hand, even if decidua cells are found, they do not absolutely determine the recent existence of pregnancy, since they have also been found in the unimpregnated uterus with endometritis, dysmenorrhœa membranacea, and pseudo-menstruation after phosphorus poisoning. Five cases were studied in which the history was that of abortion during the second month of pregnancy. The distinctive microscopical appearance consisted in cubical epithelial cells or also the so-called decidua cells in the connective tissue. These were found in three of the five cases. The decidua cells were for the most part necrotic, or in colloid or granular degeneration, as if the vera of abortion had been converted into ordinary mucous membrane again. Between the cubical cells were found in two cases small round cells, considered by Gottschalk substitution cells for epithelium. In the interglandular tissue were small round, nuclei like lymph bodies—substitution cells for connective tissue.

Gonorrhœal catarrh of the endometrium was studied in its acute and chronic forms. The changes in the mucous membrane were mainly those of endometritis; the superficial epithelium was absent; the glands were slightly or not at all changed. Their number was not increased, their lumen was small, and they were in many instances filled with secretion and detached epithelium. Their epithelium was rapidly renewed, and many of the nuclei contained nucleoli. The interglandular tissue was composed of small round cells, with round-

ish nuclei in abundance. In one case only the vaginal mucous membrane was inflamed, the endometrium being almost normal. Simple chronic endometritis showed two varieties of changes in the uterine mucous membrane. In the first the glands were changed both as to number and form, their epithelium showing a variety of changes, the interglandular tissue always showing hyperplastic processes. The cells and nuclei were increased, and there was an abundance of spindle cells. This constitutes the chronic hyperplastic endometritis of Olschhausen, or *endometritis fungosa*. In the second form the mucous membrane is not so thick as in the first; the glandular apparatus is unchanged; the interglandular tissue shows an increase in the number of nuclei. With this form the hæmorrhage at the monthly period is very profuse, while with the first there are both profuse hæmorrhage and dysmenorrhœa.

In a case in which repeated abortions occurred during the first two months of pregnancy the scrapings showed great hyperplasia of the glands. In two cases in which involution after labor was tardy and imperfect, fresh inflammation of the mucous membrane was apparent, though the labors had been normal. In two cases of tumor of the cervix uteri with profuse hæmorrhage at the period of the menopause the scrapings showed no evidence of malignancy, the glands being very little changed, while the interglandular tissue was the seat of a small-celled infiltration.

In a case of carcinoma of the ovaries the appearance of the uterine mucous membrane was simply that of fungous endometritis—abundant glandular proliferation, with increase in the nuclei of the connective tissue.

A considerable number of cases was studied in which there were fibromyomata in the uterine wall. In these cases the mucous membrane was thickened over most of its area, but in some portions it was atrophic. In some cases the surface had the appearance of granulation tissue, the openings of the glands being apparent to the naked eye. The microscope showed hyperplasia of the glands and proliferation of the cells of the interglandular tissue, in addition to normal arrangement and normal appearance of the cells. In cases with inflammatory phenomena there was proliferation of the glandular epithelium with small-cell infiltration.

It was believed that disease of the mucous membrane preceded the development of the fibromyomata, and was to a certain extent responsible for such development, though this is contrary to conclusions recently reached by Ebendorfer as the result of careful investigations.

A case of diffuse sarcoma of the endometrium which was definitely diagnosed showed the difficulty of diagnosis from carcinoma and from endometritis following abortion.

**Purulent Parametritis in which the Pus contained Proteus Vulgaris and a Streptococcus which had Lost its Virulence and its Vitality.**—The subject which is covered by the foregoing title of a paper by Doléris and Bourges (*Nouvelles archives d'obstétrique et de gynécologie*, Nov. 25, 1892) is a very important one. It is only in recent times (since the aid of bacteriology has been invoked) that we have begun to understand the real pathology of the disease. The history of the case which forms the basis of this paper is a familiar one: *post-partum* peritonitis, recovery, subsequent intra-uterine treatment (after a period of six years), infection, parametritis. The acute symptoms lasted two months, and, as it was believed that the uterine veins and lymphatics were charged with the poison, though the acute symptoms had subsided, it was decided to remove the uterus. When the abdomen was opened, however, this was found impracticable. Large sacs of pus were found in the appendages of either side. That on the left was so firmly attached that it was left intact; that on the right was rup-



tured in attempting its removal; its edges were stitched to the borders of the abdominal wound, and its cavity packed with gauze. The patient was entirely well in six weeks, the tumor on the left side having gradually contracted and disappeared. The pus from the tumor contained specimens of *Streptococcus pyogenes* and *Proteus vulgaris*, the latter a normal resident of the intestine, but susceptible of doing injury when present in great numbers. Cultivation of these two microbes and experimentation upon rabbits showed that the streptococcus had lost its virulence. The question arises whether this was due to the length of time the disease had lasted (two months), or to the antagonism between the two varieties of microbes, association causing modification of their properties, as shown by Garré. The authors made a series of experiments which disproved the position of Garré, and hence they were obliged to accept the other horn of the dilemma. That the acute symptoms in this case should have been absent for fifteen days prior to the operation, while a great quantity of fetid pus remained in the pelvis, infiltrating the uterus and intestine; furthermore, that a quantity of this offensive material should be allowed to remain in the body without apparent harm to the individual, is an illustration of some of those mysterious conditions of which no one has yet given a satisfactory explanation. That women with disease of this character occasionally get well without an operation, the pus being absorbed, or the system becoming tolerant of it and its contents in some way or other, the history of the many cases which were formerly treated as cases of cellulitis would seem to show. We also know that some of them get well when only an exploratory operation is performed. In any event, it seems very probable that the bacterial life which is concerned with the disease is modified by age, by exposure to air, and by other conditions of which we as yet know nothing, so that an apparently hopeless case results in recovery. A practical suggestion for cases like that which is here narrated would be that an attempt to do too much by operative measures will frequently produce a fatal issue; an exploratory incision will frequently prove curative.

**The Operative Treatment of Retroflexio Uteri** (Dührssen, *Internat. klin. Rundschau*, Dec. 4, 1892).—The condition of retroflexion of the uterus in women was believed to be one which always leads to more or less serious disease. Its treatment with pessaries is not an ideal one and brings with it many disadvantages. This is the justification for the operative treatment of the condition, and an operation is to be desired which is not dangerous to life, which will cure the retroflexion without giving rise to other troubles, and which will not interfere with the performance of the functions of the uterus. Such an operation has been devised by the author and practiced in a hundred and thirty cases. The first step consists in releasing adhesions of the uterus and ovaries, if any exist, by Schultze's method. The vagina and external genitals are then disinfected with a one-per-cent. lysol solution, the posterior vaginal wall retracted with a Simon speculum, anterior lip of the portio vaginalis seized with two bullet forceps, the uterus drawn down and its interior curetted and irrigated, the lysol solution being used. The bladder is then pushed forward and upward with a male catheter, which has been introduced into it, while the assistant on the right side draws down the portio vaginalis to the vulva. The operator then makes a transverse incision one centimetre long in the anterior vaginal wall just in front of the portio, grasps the upper border of the wound and drags it forcibly upward, lengthens the incision by one centimetre with scissors and also deepens it into the fascia until an opening is large enough to admit the index finger, by which the attachment of the bladder is separated. A sound is then introduced into the uterus and held by the assistant on the left, who depresses the

organ until the fundus can be felt by the index finger of the operator. Then four provisional ligatures are passed, one above the other, through the anterior wall of the uterus, their ends being held by the assistant on the right, who drags the uterus downward and forward by traction upon the ligatures. Next three sagittal sutures are passed through the anterior portion of the vaginal wound, but beneath the mucous membrane, each one passing also through the anterior portion of the fundus uteri. These sutures having been tied, the mucous membrane of the vaginal wound is closed over them with a running catgut suture, the uterus is irrigated, and the vagina is tamponed with iodoform gauze. This operation is performed by the author in about ten minutes. The patient should remain in bed eight days after the operation, and should abstain from severe work for a somewhat longer period. Of the bad results which may possibly follow the operation, retention of urine and metrorrhagia are mentioned. In one case the three sutures were passed off through the urethra several months after the operation. In none of the hundred and thirty cases was there a fatal issue, in very few cases was there any septic complication, and a hundred and two cases resulted in cure. In two thirds of the cases which were cured the uterus was adherent as well as retroflected before the operation. Metritis, endometritis, and fixation of the ovaries were also frequent complications, and massage and intra-uterine applications were required to complete the treatment. In those cases in which the cervix was fixed posteriorly by adhesions in the vicinity of the os internum the rectification of the malposition was not always satisfactory. In not a few cases the cure was only temporary, the uterus returning after a few weeks or months to its vicious position. It was thought that this might frequently be avoided by the judicious use of massage after the operation. [This operation adds one more to the list of methods for the treatment of retroflexion of the uterus, and the ideal method is yet to come. We agree entirely with Dührssen, as do most gynecologists now, that the pessary treatment of uterine displacements is unsatisfactory and seldom curative; also that the condition of retroflexion is one which under all conditions demands attention for possible if not for existing evils. We think the method of Schultze—of tearing adhesions without knowing what else may also be torn—is a bad one and must often be dangerous. Very few operators, we think, could perform the operation that has been described in ten minutes, or have so large a percentage of recoveries as its author.]

**The Biology of Fibromyomata of the Uterus** (Kleinwächter, *Ztsch. f. Geb. u. Gyn.*, xxv, 2).—The author considers it a remarkable fact that, notwithstanding the great amount of study which has been directed to the subject of uterine myomata in general, almost nothing has been done with reference to the subject of their developmental relations. Only Gusserow and Schorler have paid attention to this subject, and their work has not been exhaustive. According to Gusserow, the rate of growth is very slow, the pure fibromata growing much more slowly than the myomata. The somewhat rapid enlargement which is sometimes seen in myomata, especially during the coexistence of pregnancy, was to be attributed not to increase and growth of the constituent elements, but to changes in the blood supply, to oedema, and to inflammatory changes. Changes in size in myomata are often quite noticeable before and after menstruation. Temporary diminution in size is sometimes associated with exhausting disease. Among fourteen cases which Gusserow studied he observed that after six months the tumor in one case was as large as a fist; another was as large as a fist after a year's duration. In two cases which had continued a year and a half the diameter of one tumor was fifty-five millimetres, and of the other forty millimetres. In one which had lasted two years the

size was that of a child's head, and there was no enlargement the next two years. In one of three years' duration the tumor extended from the pelvis to the navel. One tumor of six years' growth was no larger than the fist, and another of equal age extended three fingers' breadth above the symphysis. One of eight years' growth was no larger than a fist, and another of nine years and a half was as large as a man's head. Gussierow admits that these statistics are not very accurate or very satisfactory.

Schorler made a study of eighteen cases of uterine myomata and concluded that the first appreciable symptoms might appear within three months from the origin of the disease, that after one year the tumor might still be very small, in five years it might be as large as a fist, and in thirteen years as large as a man's head. In two cases an increase of twenty centimetres in the body measurement was observed in three years, in one case the same degree of enlargement took place in a year and a half. To the foregoing data Kleinwächter adds the statistics of forty cases which he had carefully followed in his own practice. They are divided into two classes, in one of which the growth was rapid and in the other slow. The general supposition that tumors cease to grow during and after the menopause was not demonstrated in the majority of the cases which were seen by him during that period. In the greater number of cases the development continued. In some of the cases growth was slow at first and then became rapid and considerable. In three cases only was permanent diminution in the size of the tumor observed. In one case cancerous degeneration took place.

**The Extensive Distribution of the Nerves in the Human Ovary** (Herff, *Contribl. f. Gyn.*, 1893, No. 1).—A series of investigations upon the human ovary, with special reference to the ending and distribution of the nerves, has been made by the author. Specimens were used which had been obtained by operation and others from cadavers and new-born infants. The conclusions were that the ovarian nerves were principally vasomotor nerves. Their number is so great that they include a considerable portion of the structure of the organ. They form in most cases a thick plexus, but not an anastomosing arrangement. They are distributed alike to capillaries and to vessels with muscular fiber. A relatively small number of fibers end in the muscle cells of the hilum, or between the cells of the germinal epithelium. There are also nerves in the follicular epithelium, but whether they extend to the cumulus proligerus was not determined. The presence of ganglion cells could not be satisfactorily determined, but their presence at least in the hilum was considered very probable.

**A New Method of extirpating the Uterus** (Hochenegg, *Contribl. f. Gyn.*, 1892, No. 48).—The sacral method of operation recommended by this author met with a sympathetic reception at first, but since then has been more or less discarded, and there is danger of its obsolescence notwithstanding the fact that the results of the operation have been good. Of thirty-three reported operations, the mortality has been but nine per cent. The causes of the unpopularity of the operation are the difficulty of its performance, the occasional troublesome hemorrhage, but especially the distaste which gynecologists have for bone operations. Against these disadvantages should be weighed the great advantages of the sacral over the vaginal method, consisting especially in the accessibility which is given to the diseased structures.

The incision should extend from a centimetre above the sacro-iliac junction in the middle line as far as the anus, then pass around the anus on the left side, ending in the middle line at the perineum. The upper portion of the incision should extend down to the bone, the lower portion extending to the circumrectal cellular tissue, while at the perineum only the skin is to be incised. The tissues are separated from the ischium,

the rectum is loosened along the left side, while on the right and anteriorly its attachments are not disturbed. This brings one around the rectum to the posterior vaginal wall, the left side of which is isolated; long scissors are introduced into the vagina, and an opening in it is made. The rectum is now to be dissected in the upper angle of the wound from the posterior surface of the uterus, the space of Douglas opened—and this may be done without danger to the intestines—the entire posterior aspect of the genital apparatus being then brought into view. One can now cut away the organs securely, separate the bladder, expose the ureters, tie vessels, separate the parametrium, and, if necessary, remove a portion of the vagina, everything being under control of the sight. The hemorrhage by this method is very slight, and the wound large enough to remove not only the uterus, but the ovaries and contiguous tissues. The peritoneal opening should then be sewed up with buried sutures, the vaginal wound closed, the rectum fixed in its former position with buried sutures, and the external wound tamponed with gauze or drained and sutured.

After the operation the patient should be kept in the horizontal posture with the pelvis elevated to prevent intestinal obstruction.

This method is recommended for all cases of uterine carcinoma, and it will enable one to remove diseased glands in the space between the uterus and rectum. The author has often found these glands infected when others are not yet diseased. The operation is analogous to that for cancer of the breast, in which it is now generally regarded as proper to open the axilla in all cases and remove the glands.

**Occlusions of the Intestinal Tract and Intra-abdominal Herniæ in Connection with Pathological Changes in the Female Genital Organs** (Stratz, *Ztsch. f. Geb. u. Gyn.*, xxv, 2).—Reports of incarceration of the intestine occurring after abdominal operations, especially after vaginal extirpation of the uterus, are not uncommon. The accidents are usually explained as resulting from severe operations, from the action of air and disinfectant solutions upon the intestinal serous membrane, or from the formation of adhesions within the peritoneal cavity. Such causes are not considered in the author's present paper, but only those in which occlusion or hernia arises from physiological or what the author styles natural pathological conditions. Ten cases are narrated from various sources, including five of the author's, in nine of which the obstruction was due to peritoneal adhesions, and in one to the long pedicle of an ovarian tumor associated with pregnancy. Two of the cases were fatal from peritonitis. Seven of the cases were due to peritoneal diseases or their consequences, and the others to tumors. In many cases in which adhesions are present the continuity of the intestinal tract is not interrupted, but we have constipation alternating with diarrhœa without decided ileus. This circumstance is explained by the gradual pouring out of exudate and the adaptation of the intestine to changed conditions. As the exudate is absorbed the intestines are usually released from their abnormal conditions. Occasionally an adhesion between the intestine and the genital organs persists, and an opportunity is furnished for the development of an intra-abdominal hernia.

The most important symptom in making the diagnosis of intra-abdominal hernia is ileus, and this is the symptom which usually calls for operative interference. Subjectively there are feelings of discomfort in the intestines, vomiting, and constipation; objectively there is a very sensitive tumor, which does not proceed from the genital organs, but has very intimate relations with them.

**Ascites from a Gynecological Standpoint** (Gussierow, *Contribl. f. Gyn.*, 1893, No. 1).—In all cases of ascites which



can not be accounted for by disease of the circulatory system, liver, or kidneys, Gusserow recommends incision of the abdomen, rather than puncture, as a means of diagnosis. The former is not more dangerous than the latter, and allows one to obtain more accurate information of the existing condition, as well as to evacuate the contained fluid. Cases of this condition are divided into four groups:

1. Those which are caused by tuberculous peritonitis.
2. Those which are due to papilloma of the ovaries.
3. Those which arise from carcinoma of the ovaries or peritoneum.
4. Those which are associated with benign disease of the genital organs.

The term peritonitis nodosa is preferred to tubercular peritonitis, for the cases which are thus denominated frequently lack the characteristics of tuberculosis—caseation, giant cells, and tubercle bacilli. In the third group are distinguished cases in which all the diseased tissue is removable, those in which only a portion is removable, and those in which nothing is removable. Even in the latter an incision is often followed by improvement.

## Miscellany.

**Lymphadenia.**—In the third volume of the *Johns Hopkins Hospital Reports* there is an interesting article by Dr. Simon Flexner, on Multiple Lymphosarcomata, in which he reports two cases and gives the following résumé of our present knowledge of the subject:

"Much has been written on the affection known as lymphosarcoma, and the literature of the subject is to be sought under a score of names which have been proposed for it at different times and in different places. The disease was first described by Hodgkin in 1832; afterward it was called by Wilks Hodgkin's disease, *anemia lymphatica*; by Cohnheim, *pseudo-leukemia*; by Trouseau, *adénie*; by Ranvier, *lymphadenia*; by Musick, *lymphatic cachexia*. With reference to the pathological changes which it induces in the various organs, it has been called vascular sarcoma of the lymphatic glands, *Craigie*; malignant lymphoma, *Billroth*; lymphosarcoma, *Virechow*; malignant lymphosarcoma, *Langhans*; lymphadenoma, *Wunderlich*, *Ranvier*; desmoid carcinoma, *Schulz*. It is needless to say that much confusion is necessarily introduced into the study of the disease by the abundance of designations which it possesses. At the present time, however, many of them have fallen into disuse, and in this country and Germany the affection is for the most part described under the titles lymphosarcoma, malignant lymphoma, and pseudo-leukemia, to which in England is to be added lymphadenoma.

"Weisshaupt has just discussed the applicability of some of these names, and concludes that the appellation 'lympho-sarcoma' should be abolished altogether, as it serves only to bring confusion into the subject, and he proposes the adoption of the term pseudo-leukemia, in preference to others now in use. This view, while according with ours in so far as it discards the idea of an actual tumor process characterizing the disease, assumes, nevertheless, an actual acquaintance with it which it is needless to say we do not now possess. Until such a time as the aetiology of this affection shall become known, it will hardly be possible to confine its description to any one of its names.

"We have already referred to the acuteness of the course of the disease in some instances, and recently Ebstein has described, under the title '*Das chronische Rückfallsieber, eine neue Infektionskrankheit*,' what he regards as a previously undescribed acute infectious disease. His cases have been reviewed by Pel and compared with similar cases which he observed and which came to autopsy, and Pel shows conclusively that the cases of Ebstein are to be regarded as acute forms of pseudo-leukemia. Renvers reports another case associated with

recurrent elevations of temperature, in which the glands principally affected were the mesenteric and retroperitoneal; metastases were present in the liver and spleen. In a case recorded by Dreschfeld there was a large mediastinal tumor with infection of the retroperitoneal and mesenteric glands, liver, and kidneys, in which the disease ran its course with elevation of temperature; but the blood contained an excess of white cells.

"In this case the author found in the kidney numerous small, thick bacilli. No cultures were made, nor is it stated whether there were lesions in the intestinal mucous membrane or not. Bacilli were cultivated from the kidneys in our case; they were identified with the colon bacillus, however, and their presence there was not regarded as of any significance, for, as Professor Welch has pointed out, the colon bacilli wander regularly when there is a lesion of the intestinal mucous membrane, and they are found almost uniformly in the kidney in such cases.

"Many more cases are reported in which irregular elevations of temperature attended the disease or occurred a short time before death. But as these cases led to no misunderstanding, nor offer anything especial on their own account, and a number of them bear more directly on another part of the paper, they will be passed over now.

"That there are included under this disease affections which depend for their origin on totally different causes, and which have little more in common than the enlargement of one or more sets of glands, is quite sure. And, moreover, it would appear as if in the course of certain cases of lymphosarcoma a secondary process could be added to it, this one being of an infectious nature. Such would seem to be the explanation of those cases in which the pyogenic cocci were isolated from the diseased glands.

"The case of Weisshaupt, the autopsy having been made by Baumgarten, shows that in some instances tuberculosis of the lymph glands can simulate this affection so closely as to be indistinguishable from it by the macroscopical appearances alone. In this case there was enlargement of the lymph glands of the neck, with implication of most of the glands of the body. There were nodules in the kidney, liver, spleen, and lungs. The macroscopical appearances of the glands, and the nodules in the other organs, led to a diagnosis of '*pseudo-leukemia*.' The clinical picture, too, was in accord with the post-mortem diagnosis. However, the microscopical examination of the affected glands exhibited areas of coagulation necrosis, and in them tubercle bacilli were found. The minute nodules in the lungs, liver, and kidneys did not resemble tubercles so much as lymphomata; yet in one place in the kidney a hyaline change was found in a nodule similar to those found in the lymphatic glands, but no bacilli could be detected. Weisshaupt then examined the lymphatic glands from twelve other cases of pseudo-leukemia, including hard and soft forms, without finding tubercle bacilli. His conclusion is that in its aetiology pseudo-leukemia is independent of tuberculosis.

"Other cases in which tuberculous affections of the glands are said to have simulated pseudo-leukemia are reported by Wätzoldt, Brentano and Tangl, Delafeld, Cossy, and Crocq. In the case of the second-named writers there were old and healed lesions in the lungs, tuberculous ulcers in the intestine and peritoneal tuberculosis, while the glands showed no caseation, but upon inoculation into guinea-pigs gave rise to tuberculosis. In a case by Claus there were tubercles in the lungs and tubercle bacilli in the sputa. In the kidneys, liver, spleen, and lungs, even, lymphomatous nodules were present, which the author regards as distinct from tubercles and readily distinguishable from them. Another case in which both affections occurred is that of Liebmann, but neither of these can be said to be conclusive.

"On the other hand, cases of pseudo-leukemia have been described with which the pus organisms have been associated. Mafucci found chain-cocci in a case of malignant lymphoma, in the diseased areas only, and succeeded in cultivating them, while Roux and Lannois isolated the *Staphylococcus pyogenes aureus* from another case. We do not consider that there existed any relation of cause and effect in either of these instances. In our opinion, they merely represent an infection with the pus organisms added to the pre-existing glandular affection. A case is reported by Kelch and Vaillard in which several subcutaneous tumors existed over the body without glandular enlargement. Although the



authors regarded it as a case of lympho-sarcoma, there is no good reason to suppose it was one, and the histological description of the tumors corresponds quite as well with fibro-sarcoma. The only interesting point in this case is the isolation of bacilli from the blood during life and the cultivation of the organisms. In addition to the tumors there was leucocytosis, and the liver and spleen were enlarged. A case reported by Taylor as 'sloughing lympho-sarcoma of the back and other lesions of the skin and internal organs' was probably syphilitic in origin.

"There are certain cases of lympho-sarcoma of quite undoubted nature in which the glandular enlargement diminished under treatment. Not a few of such are recorded. The improvement has followed the use of arsenic, given internally, and applied directly to the diseased glands by parenchymatous injection. Examples of improvement are reported by Israel, Köbner, Strümpell, Billroth, Winiwarter, and others. In a case of Arning's in which there were tumors in the skin, mucous membranes, and muscles, one of the tumors was extirpated and its character determined by microscopical examination; improvement occurred in this case also. Wunderlich cites two cases in which syphilis could be excluded, which improved under the administration of iodide of potassium.

"The occurrence of ulceration and other forms of degeneration in the tissues in which the tumors developed and in the tumors themselves is not so very uncommon. It is probable, indeed, that the tendency to the graver forms of degenerative changes is not so marked in this as in some other affections, and the more minute and less evident forms have, perhaps, not received the attention which they would seem to deserve. Virchow has again called attention to the persistence of lympho-sarcomata, and he regards them as belonging essentially to those tumors which do not ulcerate or do so only under special conditions. He says: 'What is especially characteristic of them, and in consequence of which they have few parallels among tumors, is the persistence of their elements, as if they were normal elements and structures of the body. Lympho-sarcoma does not become caseous; does not suppurate, does not tend to ulcerate; but forms nodules of a lasting nature.' This utterance was made in the course of a discussion on tumors of the mediastinum. However, there are a number of undoubted cases of ulceration recorded, although the proportion is not large. It would appear that it is in particular situations that ulcerations are chiefly found. The most usual is the alimentary canal, and in particular the intestinal tract; next to this in the skin.

"Coupland reports a case of general glandular enlargement in a young woman of twenty-five. The stomach gave evidences of post-mortem decomposition at the fundus; at the pylorus the mucous membrane was thickened, opaque, and mamillated; a number of the mamillations showed central pits or depressions. These he regarded as the enlarged and ulcerated solitary follicles. The mucous membrane of the duodenum was of a dead-white color; it was infiltrated uniformly with an opaque white material, and was marked here and there with small erosions and superficial ulcerations. The ileum showed a more pronounced degree of the same process, the patches of Peyer were especially affected, and the generally smooth surface of the mucous membrane was interrupted by a ragged, villous-looking ulceration that had taken place along the margins of the valvulae conniventes and in the site of a Peyer's patch.

"The new tissue was deposited in the mucosa and submucosa. The growth of it between the crypts of Lieberkühn had caused them to shrivel and atrophy. The muscular coat was infiltrated, and the amyloid changes were present in the intestines and mesenteric glands.

"In a case of Jarlet's there was perforation of an enlarged and ulcerated plaque in the ileum. In most of the ileum the patches of Peyer were hypertrophied; a few only had ulcerated. In the jejunum the ulcers affected the valvulae conniventes at times; several ulcers occurred in the duodenum, one just below the pylorus. The intestines were adherent to one another, and over the ulcerated areas there was a thick infiltration of the peritoneal and other coats, the enlarged and ulcerated plaques projecting into the lumen of the intestine from 1 to 3 cm. The mesenteric glands were affected. There were no metastases in other organs.

"A case reported by Pitt is that of a man forty-eight years old. In the stomach were large masses of lymphoid overgrowth, situated on the

mucous wall, forming sessile tumors. At the cardiac end, two inches from the diaphragm, were large masses, both sessile and polypoid. The growths were creamy white, soft and succulent, and the largest ones were breaking down at their bases. Large numbers of growths were present in the intestines, beginning in the duodenum and extending to the colon, which was free; many of these had ulcerated and were bile-stained. The mesenteric glands, lumbar glands, and spleen were enlarged; the peritoneum healthy.

"Another is that of Pick. At its margin between the jejunum and ileum was a mass of infiltration 15 cm. in length; this growth had thickened the mesentery to the extent of 3 cm. For a space of 4 cm. square the mass was necrotic and ulcerated; beyond this one was another but more superficial ulceration. The mesenteric and retroperitoneal glands were infiltrated. There were metastases in the liver and kidneys.

"In the case of Hensch a ring of tumor mass surrounded the intestine, and in the mucous membrane corresponding with the ring was a loss of substance about the size of a dollar. The small curvature of the stomach was infiltrated with the tumor, and the mesentery throughout. Metastases were present in the peritoneum, diaphragm, kidneys, liver, gastro-hepatic glands, retroperitoneal glands, and mediastinal glands.

"Still other cases are reported by Moore, Steiner, Legg, and others; and for the occurrence of similar ulcerations in the stomach the reports of Hérard, Kutzner, Wunderlich, Hadden, and Kredel are to be referred to. In the description of the affection given by other authors, moreover, the occurrence of ulceration in the stomach and intestines is freely stated, for instance, by Birch-Hirschfeld, Gowers, Cornil and Ranvier, and Ziegler.

"Other forms of degeneration in lympho-sarcoma are hardly mentioned by writers on the subject, and the production of marked changes in the surrounding tissues has not been seen to any extent, if we exclude the direct effect of the growing tumor masses on the tissues of the part in which they are found. However, the case of Coupland, already quoted, might be regarded as an instance of degeneration in excess of the purely mechanical effect, and in those reported by Ribbert there was atrophy of the tissues of the bronchi, notwithstanding a moderate lympho-sarcomatous development within them. But of special interest in the cases of Ribbert is the occurrence of actual hepatization around the aggregated lymphomatous nodules in the lung. These lymphomata could be distinguished from tubercles by their appearance, and the difference was confirmed by the histological and bacteriological examinations. The character of the exudate about the nodules was unlike that of croupous pneumonia as well as caseous pneumonia, and consisted largely of epithelial cells, a varying number of lymphoid cells and fibrin. No micro-organisms were detected in the tissues nor could any be cultivated. Similar lymphoid nodules were present in other organs and parts.

"Schulz reports several cases in which, in the neighborhood of the new growth in the liver, stomach, intestines, and kidneys, the epithelium of the parts was swollen, very granular, often fatty and disintegrated. . . .

"Murchison reports a case of a large tumor in front of the spine which was covered by the intestines. The tumor consisted of the enlarged mesenteric glands together with an enormous thickening of the coats of the duodenum and upper parts of the jejunum. The thickening was due to a deposit of new tissue in the subserous and submucous tissues. The mucous membrane of the intestine was not ulcerated, nor were the follicles enlarged. Similar deposits occurred in the peritoneum, diaphragm, fundus of urinary bladder, in the liver, kidneys, and heart muscle. The new growths consisted of lymphoid cells, and were distributed along the course of the portal canals in the liver, and occupied the interstitial tissues of the kidneys overlapping the tubules. A second case of Murchison's had general glandular enlargement with metastases in the spleen, liver, diaphragm, lungs, and dura mater. The kidneys and intestines were unaffected. The histological examination of this case by Dr. Sanderson showed that the new growth in the liver originated in the portal spaces.

"In a case published by Suckling there were multiple growths from the dura mater, and the intestinal glandular apparatus was affected.

Moreover, there were enlargements of the mesenteric glands and liver, and the left kidney contained a nodule. Wiegand reports a case with nodules in the heart muscle, and general affection. In the kidneys the nodular growths were not so sharply circumscribed as they appeared to be on naked-eye examination.

"Cohnheim has described an interesting case. The cervical, submaxillary, retroperitoneal, and inguinal lymph glands were enlarged. The spleen was enlarged. The left kidney likewise, and the whole surface was mottled with wide, often confluent, blood-red spots and lines, the ground substance being white. The hemorrhages were mostly superficial, so that the parenchyma itself exhibited a variegated appearance, the white exceeding the red patches. The right kidney was similarly but not so extensively affected as the left. The intestines were normal. The liver was large, the acini were surrounded with remarkable regularity by a translucent ring of light gray color half a centimetre in thickness. These were made up of collections of lymphoid cells occupying the portal spaces and sending offshoots into the acini between the rows of liver cells. In the kidneys the greatest accumulation of cells was in the intertubular tissues.

"In the case of Eberth there was slight enlargement of the mesenteric glands; the mucous membrane of the stomach contained a large number of superficial medullary nodules of the size of a pea; both kidneys were enlarged and presented numerous metastatic nodules the size of a cherry. The actual kidney parenchyma was to be seen in a few places only. No macroscopic change in the liver was observed, but on microscopical examination there were considerable collections of lymphoid cells around the central veins and in the interstitial tissue.

"Several cases are reported by Turner. In the first the kidneys were enormous in size, owing to the infiltration with lympho-sarcomatous tissue. One weighed nineteen ounces and the other nineteen ounces and a half. The glands under the jaw and the axillary glands were enlarged. There were purpuric spots over the body, and ecchymoses in the pleura and pericardium. Another case in which the kidneys were much enlarged is reported by him, and there were multiple ecchymoses over the pericardium, peritoneum, dura mater, optic discs, and pia mater. The microscopical appearances were similar to those in other cases, the growth in the liver following the portal spaces, and in the kidney it was intertubular, with a tendency to surround the glomeruli. Rosenstein has published a case in which the superficial glands were enlarged, and metastases had occurred in the spleen, liver, kidneys, and the right adrenal gland. In the kidneys there were atrophy and fatty degeneration of the epithelium of the tubules.

"Packard reports a case of a child six months old in which there were numerous subcutaneous tumors, and in which the thymus was large and indurated by buckshot-sized nodules scattered through it. There were masses of tumor surrounding the thoracic aorta, and metastases in the lungs and liver; the gastro-hepatic glands were enlarged, but the mesenterics were not, and the right adrenal gland was involved. Borlée describes a colossal tumor of the lower jaw and neck in a man of sixty-five. The axillary and inguinal glands were affected, and those of the root of the lungs and the bronchi also. The pancreas, mesenteric glands, cæcum, and vermiform appendix were grown together into a tumor mass. Both kidneys were affected; in the knee of the corpus callosum was a tumor of the size of a hazelnut.

"From this brief review it will be seen that few, if any, structures of the body are free from the invasion of this affection. Although the place of origin is the lymphatic apparatus, and the cervical glands would seem, in a majority of cases, to be the earliest affected, Schulz believes that several sets are simultaneously involved. However this may be, as Virchow and others have pointed out, the process sooner or later becomes heteroplastic and all structures are invaded indifferently.

"A certain number of cases, on the other hand, proceed to their termination without any involvement of the superficial glands; and in still others, where there are lymphatic structures closely associated, one will be affected and the other not. In our cases, for example, with great involvements of the lymphatic apparatus of the intestine, the mesenteric glands escaped altogether.

"The production of metastases in other organs, in the kidneys, liver, etc., is clearly due to infection by means of the blood current.

The distribution of the affection in these organs is uniformly the same and follows the blood supply. In our first case, again, the tendency of the disease process to appear about the blood-vessels of the submucous coat of the intestine, rather than the lymphatics, may account for the escape of the mesenteric glands and the infection of the liver and kidneys.

"It is by no means clear why the kidneys should become affected through the blood and the lungs escape. This is seen to happen in many instances, and if the reported cases are studied there is seen to be a preference for the localization of the process in certain organs. Clinging the spleen with the lymphatic glands—for it is quite as often involved as any set of glands—we have the liver, kidneys, intestines, and the lungs susceptible in the order of their mention. Much more rarely are other organs affected—the central nervous system, skin, heart, ovaries, testicles, bone-marrow, and adrenals. So far as the infection of the lungs is concerned, it is possible that the smaller size of the nodules which develop there and their relative inconspicuousness may account in part for the great difference observed.

"But, on the other hand, it is evident that a large number of cases remain in which the process can not be followed in its metastases as cancer can be, and it would seem to follow other laws. This difficulty has been present to the minds of other writers, and Schulz has emphasized the fact that the infection in lympho-sarcoma is not to be viewed as a metastasis in the usual sense, but to be regarded as the result of a virus diffused through the body, following an affection of the lymph glands.

"From whatever side this affection is viewed, whether from its clinical history or its pathological anatomy (the latter being taken to include the histological structure, the alteration in the tissues produced by its presence, its mode of extension from one place to another, in the first instance from lymph glands to lymph glands, and then from the latter to other organs), we are met with the necessity of regarding it not so much in the light of a true tumor as of an infectious disease due to a specific micro-organism."

#### A Conference of State Medical Examining and Licensing Boards.—

The third annual meeting of the Conference of State Medical Examining and Licensing Boards will be held in Milwaukee on June 7th, under the presidency of Dr. John H. Rauch, of Springfield, Ill. The following subjects will be discussed: I. The Evolution of State Medical Examining and Licensing Boards: Their present and prospective influence in elevating the moral and intellectual tone of the profession. II. Composition of Boards: (a) The desirable number of members. (b) The desirable appointing power. (c) The advantages and disadvantages of separate boards representing the different schools of practice. III. Provisions of the Various State Laws: (a) Should the possession of a diploma from a recognized medical school be a prerequisite to appearing before a board for examination? (b) What reciprocal relations should exist between boards? (c) Should teachers in medical schools be eligible to membership on State examining boards? (d) Defects in existing laws, the best law in vogue, the ideal law. IV. Methods of conducting Examinations: (a) How should the examination be prepared? (b) The scope of examinations. (c) The minimum and maximum requirements.

**The Colorado State Medical Society.**—The twenty-third annual meeting will be held in Denver on the 20th, 21st, and 22d of June, under the presidency of Dr. W. E. Wilson, of Denver. Papers are announced as follows: Hysteria in Men, by Dr. Howell T. Pershing, of Denver; Diagnosis in Children, by Dr. Hubert Work, of Pueblo; Treatment vs. Operation in Minor Gynecology, by Dr. Mary T. Lowrie, of Boulder; The Nature of Colorado Mineral Springs, by Dr. Carl Ruedi, of Denver; The Park System of Denver, by Dr. Samuel A. Fisk, of Denver; The Diagnosis and Treatment of Some Common Forms of Nervous Diseases, by Dr. J. T. Eskridge, of Denver; Cases of Cerebral Surgery, by Dr. Clayton Parkhill, of Denver; Amputations, by Dr. G. W. Miel, of Denver; Conservatism in Accidental Surgery, by Dr. E. J. A. Rogers, of Denver; The Early Treatment of Clubfoot, by Dr. George P. Packard, of Denver; The Uric-acid Diathesis, by Dr. N. Wiest, of Denver; The Causes of Edema, by Dr. Henry Sewall, of Denver; Intubation of the Larynx, by Dr. Austin G. Case, of Denver;



The Precordial Area in Children, by Dr. H. B. Whitney, of Denver; Heterophoria, by Dr. John M. Foster, of Denver; Ulcers of the Cornea (with drawings), by Dr. W. C. Bane, of Denver; The Treatment of Nasal Obstruction, by Dr. H. H. Howland, of Denver; Essential Details in the Conduct of Labor, by Dr. Kate Reynolds Lobingier, of Denver; Secondary Post-partum Hemorrhage, by Dr. J. F. Davidson, of Denver; Vaso-motor Disturbance following Spinal Traumatism, by Dr. E. R. Axtell, of Denver; The Treatment of the Complications of Typhoid Fever, by Dr. J. N. Hall, of Denver; The Indications for the Use of the Uterine Curette, by Dr. W. W. Grant, of Denver. Papers have also been promised by the following members, but the subjects have not yet been announced: Dr. John M. Keating, of Colorado Springs; Dr. E. C. Rivers, of Denver; Dr. P. Thombs, of Pueblo; Dr. Robert Levy, of Denver; Dr. W. C. Davis, of Denver; Dr. John Chase, of Denver; Dr. Laura L. Liebbardt, of Denver; Dr. A. Stedman, of Denver; Dr. J. C. Herrick, of Denver; Dr. Lewis M. Walker, of Denver; and Dr. W. B. Craig, of Denver. The president will deliver the address in Therapeutics; Dr. W. J. Rothwell, the address in Medicine; Dr. J. W. Collins, the address in Gynecology; and Dr. Lewis E. Lemen, the address in Surgery.

**The Non-operative Treatment of Strabismus.**—After alluding to Dr. Bernstein's article, published in the *Journal* for April 22d, the *Medical News* says: "Instead of a bandage we are accustomed to use a rubber blinder attached to the spectacle-frame, thus permitting the eye to be open. Another method we have found most serviceable is to mydriaticize the sound eye only for an occasional week or two. This is of especial use when children are too young to wear spectacles. The relief of reflex symptoms by glasses alone is also a fact of great interest, even when high heterophoria coexists. A patient of the writer's is now wearing simple ametropic correction with twenty degrees of esophoria uncorrected, with complete relief of previous severe reflex symptoms, and with constantly strengthening muscles. We are very frequently too impertinent with our surgery, and if we would only give the natural recuperative powers an opportunity and the means of self-cure, we should bring about correction by normal and easy methods. As Dr. Bernstein courteously says, the treatment he advocates is in accord with the method of treating argamblyopia proposed in the *News* for December 31, 1892."

**The Society of Medical Jurisprudence.**—The paper announced for the meeting of Monday evening, the 8th inst., was on Recent Forensic Malpractice, to be read by Dr. E. C. Spitzka.

**The late Dr. John Halsey Hunt, of Port Jervis, N. Y.**—The following resolutions were passed at a recent meeting of the Society of the Alumni of Bellevue Hospital:

Whereas, Our associate, Dr. John H. Hunt, has been removed by an untimely death from the activities and usefulness of his profession, we, his collaborators in Bellevue Hospital, New York city, desire to give expression to our personal regard for his many estimable qualities as a man, our appreciation of him as a friend, and our sincere regret that in his decease our profession has lost an ardent, conscientious, and experienced practitioner. Dr. Hunt's amiable qualities and medical acumen won him honored consideration while a fellow worker on the hospital staff; his laborious efforts in his professional life have secured for him reputation and regard.

In his death we desire to reiterate our sense of personal and professional loss, and to his family and friends give fitting testimonial of our sorrow and sympathy.

{Signed}

{ L. BOUTON BANGS, }  
{ T. H. BERGEHAED, } Committee.  
{ R. A. MURRAY, }

**The late Dr. William Lomax, of Marion, Indiana.**—The following is condensed from a sketch kindly furnished by Dr. A. W. Brayton, of Indianapolis:

Dr. Lomax attended lectures in the Ohio Medical College in 1836 and in the Indiana Medical College in 1847, and graduated from the University of the City of New York in 1850. He practiced at Marion until 1861, when Governor Morton issued to him the first surgeon's commission granted by the State of Indiana. He was made sur-

geon in chief of division and medical director of the Fifteenth Army Corps, and served throughout the war. His wife, nursing the wounded, fell a victim to disease and died at Sharpsburg, Maryland, in December, 1861. Dr. Lomax was the leader in the organization of the State Medical Society; he was its president in 1866, and almost solely by his influence was it constituted in 1875 of accredited delegates from county societies and incorporated under State law.

Dr. Lomax had a large library, both medical and secular, and was a friend of higher education. About a year and a half before his death he bequeathed his farm near Marion and other property to the amount of over fifty thousand dollars to the Medical College of Indiana. Dr. Lomax was an enthusiast in his profession; he practiced fifty-six years continuously in the same neighborhood, was a member of the order of Free Masons, an active churchman, and a philanthropist. Through his aid and influence his county society owns its own meeting place, and from its commodious hall almost the entire profession in the county of Grant followed his remains to their last resting place.

**To Contributors and Correspondents.**—The attention of all who purport favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the typesetters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.



Original Communications.

PERIODICAL SLEEP SEIZURES OF AN EPILEPTIC NATURE.\*

By GEORGE W. JACOBY, M.D.

THERE can be no doubt that the study of physiological sleep is surrounded by insuperable difficulties, and that no great advance in our knowledge of the causes and laws which govern this condition has been made. To a certain extent this failure must be attributed to the almost exclusive employment of experimental physiology as a method of study, and the neglect of other methods. The subject is of so complex a nature that we can not hope to attain any results from one method alone, and it would seem natural that we should give more attention to the clinical side of the question than has hitherto been done. Particularly does it seem reasonable that the study of pathological disorders of sleep should be of service in this regard. The production of artificial sleep, known as the hypnotic state, has of late years so engrossed the attention of all observers that pathological modifications of spontaneous sleep have been almost totally disregarded. The appearance of Gélinau's publication on narcolepsy in 1880 for a time caused considerable interest to be taken in these cases of abnormal sleep, and they were then studied and classified.

Under the designation narcolepsy are classed all cases in which, from whatsoever cause, an imperative and irresistible somnolence occurs suddenly, and recurs after more or less short intervals. This condition may occur from a variety of causes, but the sleeping states known as hysterical are of so interesting a nature, and they have received so much attention, that all other causal agencies have been overshadowed by them; it is therefore not surprising that the majority of practitioners are prone to class all cases of periodically recurring sleeping attacks as hysterical: thus, while it has been acknowledged that certain of these cases of sleep seizures may be epileptic in nature, this characteristic has been entirely lost sight of. These cases of epileptic sleeping attacks are undoubtedly of considerable interest and importance, and they become so from the diagnostic difficulties which they present, as well as from the medico-legal complications which they may lead to; there can be no doubt that they occur much more frequently than the scant literature of the subject would induce us to assume. A careful study of all published cases of sleeping attacks, of whatsoever nature, certainly leaves the impression that a number of these, even if occurring in hysterical patients, are epileptic in nature. It is my intention to speak of such cases only as are undoubtedly epileptic, even though not accompanied by convulsions, and for this reason I can not enter upon the cases just referred to, which for the most part are described as cases of hystero-epilepsy. Personally, I have decided objections to the use of this compound designation. That epileptic patients not

only may, but frequently do, have hysterical attacks I willingly admit; but in describing these attacks we should give them their proper designation—epileptic or hysterical, as the case may be—and not create confusion by calling them hystero-epileptic.

A case reported by Sahlmen, which Dana includes under those of epileptic somnolence, is one of the few in which the author, notwithstanding the marked hysterical symptoms present in the intervals of the attacks, pronounces the convulsions and sleep attacks as epileptic, and there can be no doubt but that he is correct in this classification.

Cases of recurrent sleeping attacks unaccompanied by convulsions, but probably epileptic, in which the sleep seizure constituted the entire palpable attack, have been described by Westphal, Fischer, Mendel, and Putzel (communicated by Dana), and very recently by Berkan. Possibly the cases of Siemens and Foot also belong to this category.

The application of the term epilepsy has of late years been very much extended, and now this term embraces very much more than the train of symptoms described as tonic-clonic convulsions with loss of consciousness. We now distinguish a variety of epileptic conditions, making use of the terms *haut mal* and *petit mal* as designations for two gross divisions. In this latter category we must class those cases which, while they have little or nothing in common with the classical epileptic attack, nevertheless present symptoms which can not be explained in any other way than by the assumption of their epileptic nature. These symptoms are, in the main, short disorders and interruption of psychic action, followed in all instances by amnesia.

If the condition known as *haut mal*, occurring with or without psychic disturbances, is of itself highly interesting, that variety just referred to must attract our attention in a much wider way.

One of the most interesting chapters in the study of epilepsy is undoubtedly that of sleep, and this state has been fully treated of by Siemens. It is well known that many epileptics sleep after every convulsive attack, that a smaller number do not sleep after their attacks, and that there are patients who present no regularity in this regard, but who sleep after some attacks but do not sleep after others. What, however, is not so well known is that, in some patients, attacks of sleep constitute the chief symptom, and, as stated, it is with cases of this class solely that I propose to deal in the present communication. Such cases as Reynolds's (that of a young lady who did not sleep when she had severe convulsions, but was depressed and comatose all day when slight attacks preceded), Nothnagel's (that of a lady with otherwise short and light sleep, who very shortly before her epileptic attacks fell into a very long and deep sleep), and Schultz's (that of an epileptic sailor in whom the attacks always occurred about dinner time and were announced by tiredness, followed by a sleep during which the convulsion occurred), differ from the cases which I wish to report, and, although interesting, can not be more than mentioned.

The cases of periodical recurrent sleep seizures of an

\* Read before the Metropolitan Medical Society, February 15, 1893.

cases are which have come under my own observation are the following:

CASE I.—A man, aged twenty-nine (seen in 1887); family history neuropathic; mother had "nervous spells" all her life; one brother was epileptic and died suddenly. Patient himself was perfectly well until his twelfth year, when, in consequence of fright produced by being chased by a dog, he fell down in a convulsive attack. He was completely unconscious, bit his tongue and frothed at the mouth. After the attack he slept for several hours. This was the only purely convulsive attack that he or his family admit his ever having had. At the age of twenty-one he had a peculiar attack described as follows: He was walking with a friend, conversing upon ordinary matters, when he suddenly wheeled around, completing a full circle, and then began to run at full speed. After running a distance of about five hundred feet he fell, and when his friend came to him he found him lying upon the ground apparently fast asleep. The assertions are positive that no convulsions occurred. He slept for about fifteen minutes, attempts at arousing him proving futile, and awoke as from a normal sleep, with total amnesia as to what had occurred from the time he started to run; he, however, perfectly remembered the subject of the conversation which he was engaged in prior to this occurrence. The next attack took place under similar circumstances about two months later. The attacks gradually grew more and more frequent, so that of late years they have occurred almost daily and sometimes he has had several in one day. Whenever these attacks have been witnessed from their commencement, the reports all agree that the first intimation of the attack is the starting off on a run. He never runs for a long distance, sometimes only a few yards; he never has a convulsion of any kind; and when he ceases running is found asleep, generally having fallen, sometimes leaning against some support. A complete attack has never been witnessed indoors, but he has been found asleep in all places and positions. The sleep, as far as known, does not last more than fifteen minutes, generally less. Finally, it must be noted that the patient is a somnambulist, performing various automatic actions of a quiet nature, as walking, talking, etc. As a child he was subject to attacks of pavor nocturnus. I never had occasion to witness one of his attacks.

It is hardly probable that the epileptic nature of this case can be doubted. The case belongs to those of procursive epilepsy, being made up of the automatic action, which here seems to take the place of a convulsion and the subsequent sleep. This sleep seems to me to be similar to the ordinary sleep of epileptics after a convulsive attack. For this reason the case hardly belongs to the category to which I intended confining my remarks, but, as the patient was often found asleep without any positive knowledge of preceding occurrences, we are justified in recording it here. He is totally unconscious from the time he starts to run until he awakens from his sleep, so that the possibility remains that he actually falls asleep at once and that the running is an automatic (somnambulant) action, forming part and parcel of this sleeping state.

CASE II.—G. F. W., aged thirty-five (seen in 1890); family history unimportant; has had a venereal ulcer without any secondary symptoms; professes to have been perfectly well otherwise. Ten years ago he began to increase rapidly in weight, so that from a hundred and fifty pounds his weight within a period of two years increased to two hundred and sixty-seven. At present his weight is two hundred and fifty. This increase

in weight did not trouble him; he felt perfectly well and was not obliged to lose a single day's work on account of ill health. His occupation was that of a barber. Four years ago, while shaving a customer, he had what he calls an "attack." This attack consisted in his falling asleep; the razor with which he was shaving was firmly grasped in his hand and he was bending over the occupied barber chair; when he awoke everything was in the same position except the customer, whose discretion had probably induced a precipitate retreat. Patient felt perfectly well and bright before and after the attack; he himself says the entire attack came like a rainstorm from a clear sky. The following day, under similar circumstances, he had another attack, and, as was natural, lost his situation. The attacks, which from the first recurred daily, increased in frequency so that he would have a number in one day. Mental and bodily quietude favored their production, so that sitting unoccupied would almost certainly superinduce an attack. At present these attacks occur under all circumstances; he has fallen asleep while smoking a pipe, and thereby has set fire to the carpet; he has often fallen asleep while washing himself; and a few days ago, while seated in a chair near a hot stove, he had an attack during which he fell upon the stove, burning his face and forehead intensely. He has also been overtaken by this sleep while standing on the front platform of a street car, and has then fallen off into the street; furthermore, he goes to sleep while walking out of doors and continues walking until he awakes, having encountered some obstruction or having fallen. The longest intermission between the attacks is four or five hours, but usually not more than an interval of an hour exists. The attacks, which, as stated, are particularly frequent when patient is not actively engaged, also occur in the midst of hard physical labor. Unable to continue at his trade, the patient, in the hope that hard labor might prevent the recurrence of the attacks, accepted employment as a longshoreman. As a proof of his physical strength, he tells me that he is able, unaided, to lift and load upon a wagon objects weighing three hundred pounds. Even work of this kind did not influence the occurrence of the seizures. As regards the character of these seizures, the patient, whose intelligence is perfectly normal, can give but little information; he says that his eyes grow heavy and, notwithstanding strenuous efforts to prevent it, they close and he sleeps; he has no further premonition of the approaching attack, and during it is perfectly unconscious. I have repeatedly witnessed these attacks, and can add that his face becomes intensely congested and his head falls forward upon his chest; his pupils during the sleep are contracted and his respiration and pulse are slower than usual. As far as I have been able to observe them, these attacks are of two kinds—light and severe ones. The first partake more of the character of "absences," but lasting somewhat longer, and from these he can be awakened by shaking or addressing him roughly. The long attacks are different. In the beginning of these it is impossible to arouse him by any kind of irritation; even with a faradaic brush I have failed; but toward the end of the attack pricking with a pin causes him to make warding-off movements with his hands, and sometimes, but not always, awakens him. The attacks which I have witnessed, when not interfered with, have all terminated as normal sleep terminates in normal persons. The duration of his attacks varies from a few minutes to three quarters of an hour. They also occur when he is in bed, and his relatives at such times distinguish these attacks from normal sleep by their not being able to awaken him. Otherwise he is a very light sleeper—in fact, very restless, passing the greater part of the night in a semi-wakeful condition. Patient has been a somnambulist since childhood, his automatic actions usually being of a quiet nature; he has,

however, had noisy somnambulistic attacks in which he created disturbance by shouting and striking about himself with any object within his reach. In one of these attacks he struck his roommate with a water picher, and the following morning knew nothing of what he had done. Convulsions of any kind are positively denied; nevertheless, an examination of his tongue showed scars, and he says that it is often sore and swollen. Treatment of various kinds—with bromides, iodides, and reduction of weight—all proved unsuccessful in modifying the seizures in any way.

There can, in the light of our present knowledge, hardly be any doubt that the nature of this case is epileptic, but we are not warranted in classing these sleep attacks in the same category as the sleep of epileptics after convulsions; neither is it admissible to class them among the somnolent states which are frequently present in gross brain disease, as the patient in the intervals between the attacks was perfectly bright and wakeful. The case as one of pure sleeping attacks is very interesting, and, as will be readily acknowledged, differs entirely from those frequent cases of epileptic vertigo with momentary loss of consciousness.

Epilepsy is a disease of the brain cortex, and is caused by a temporary affection or abolition of the central processes of inhibition. It is probable that the clinical pictures of all epileptic phenomena are modified by the topical distribution of this inhibitory interference; that epileptic vertigo is due to a disorder in the cerebral hemispheres and the typical general convulsion is dependent upon an extension of the disorder to the medulla and convulsive center here situated, or to the cortical centers. If we are right in these assumptions, it follows that cases of epileptic psychic equivalents are due to an affection of the psychic centers. We are therefore warranted in classing these cases of epileptic sleep as cases of psychic epilepsy, and in attributing their causation to a disorder of these psychic centers.

Siemens believes in the existence of a sleep center, probably situated in the medulla not far from the convulsive center, with which it is supposed to possess certain analogies. Such an assumption would materially aid us in understanding the mechanism of production of these cases of sleep seizures as well as of all epileptic sleeping states, but, unfortunately, we have no reason to take the existence of such a center for granted.

The great corpulence of our patient can not fail to cause remark, and the first question which forces itself upon us is whether there is not some connection between the corpulence and these attacks. We well know that fat people, particularly when they are seated, easily become drowsy; and Dickens's fat boy Joe, whose every appearance is greeted by the remark, "Damn that boy, he's asleep again," is familiar to us all.

That there is some connection between the corpulence and the sleep attacks I firmly believe, but I do not think that these attacks are due to the corpulence, but consider it more likely that in this corpulence we must recognize a state of perverted nutrition due to the pathological condition in the psychic centers. A case of marked somnolence extending over years, with psychic and physical characteristics of such a nature as to raise a suspicion of

epilepsy, described by Morrison, weighed two hundred and fifty-nine pounds, and "his whole physique was gross."

Finally, as an example of the medico-legal relations which such sleep seizures may have, I will briefly report the following case:

W. B. W., seen in prison in October, 1889, for the purpose of giving an opinion in regard to his sanity. The prisoner, whose wife had left him on account of his violent temper and irregularities of life, purchased a butcher knife, and, seeking her out in her own dwelling, attempted to murder her, and nearly succeeded in so doing. He was arrested, and professes to have total amnesia for all occurrences from a time prior to the purchase of the knife until he found himself in the station house—a period of over two hours.

It is needless here to enter upon the details of the case or upon the reasons which led me to consider him sane and a malingerer. Suffice it to say that he professed to have had three attacks of unconsciousness during his life, each of which lasted for several hours. In one of these attacks he says he traveled from Buffalo to Niagara Falls without knowing that he had done so. He gave no history of convulsions, of tongue biting, etc., but my notes contain the following: "Patient says that he falls asleep easily during the day; that he falls asleep during important conversations and under circumstances which should make him wakeful; he furthermore says that he passes restless nights, and he has been a somnambulist since childhood."

To-day, were I to give an opinion upon the same case, I think that, in view of the notes last cited, I should be more than inclined to consider the subject an epileptic. Whether such a decision would have influenced my opinion as regards his sanity and as to his malingering is, however, an entirely different question. Westphal enters fully upon the forensic import of these sleeping attacks and refers to the case of von Zastrow (detailed in Casper and Liman, 1876, vol. i, p. 509), in which he carefully sought for a history of epileptic attacks, but was unable to find any; Westphal, however, remembers that von Zastrow said that he frequently fell asleep during the day.

This much is certain: that, medico-legally, a history of such sleeping attacks merits quite as much attention as does a history of absence, or even of marked epileptic convulsions. That attacks of *petit mal* in which the patient, while in the midst of any occupation, suddenly loses consciousness, if only for a few moments, may present medico-legal relations of a complicated nature, is well known; that psychic equivalents, psychic disorders which take the place of convulsions, are even of more importance is seen from the fact that theft, arson, sexual crimes, and murder have all been committed during such a state, and have become the subject of medico-legal inquiry. All that I wish here is to emphasize the well-known fact that in all dubious cases, of whatsoever nature, in which amnesia is alleged, we should carefully search for corroborative data of an epileptic character.

One more question I desire to touch upon before concluding, and that is the value of somnambulism as a corroborative symptom in the diagnosis of the epileptic nature of any trouble. In the three cases which I have here reported the patients were all subject to somnambulatory attacks. Of Westphal's case it is said that the woman suffered from nocturnal insomnia, and could sleep only a small portion of



the night, and in Fischer's case there was insomnia when the condition first came on; there was restlessness at night; the patient had bad dreams, during which she saw people, etc. The sister relates that the patient often sleeps with open eyes; that she often speaks in her sleep and answers questions. Of these nocturnal occurrences Fischer says: "Often she got up at night and imagined that some one was in front of her door who wanted to kill her; but she never left her room. She says that she sees these people in her dreams." It is probable that both these patients were somnambulists. Of Berkan's cases, two of the three which I consider typical cases of sleep seizures also presented somnambulatory phenomena. Of the nocturnal condition in the few other published cases nothing is said.

While it is true that somnambulism (non-artificial) may be due to a variety of causes, we know that foremost among these, beyond a doubt, stands epilepsy. It is also well known that epileptics are particularly subject to vivid and exciting dreams. So it happens that somnambulism is frequently the first symptom which may attract our attention to the possible epileptic nature of an affection, and that especially in patients suffering from recurring sleep seizures the presence of somnambulism is of diagnostic value.

Diagnostically, these cases will have to be distinguished from cases of narcolepsy, so called, and from cases of hysterical sleep. In narcolepsy there is always consciousness of what is going on during the attacks, the patient is never obtuse when awakened, and he at once has full possession of all his intellectual faculties; sensibility and motility are normal, and the attack can be cut short by any severe stimulus. Hysterical cases, even if presenting no other stigmata of hysteria, will generally show a complete or incomplete hemianæsthesia or a retraction of the visual field; the attacks occur in consequence of psychic influence, and are prolonged, lasting several hours or more.

All in all, I would formulate the diagnosis as follows:

Sleeping attacks occurring alone or in combination with other symptoms, of brief duration and followed by amnesia, are probably epileptic in character. If somnambulism, particularly of a noisy kind, is present, this probability becomes a certainty.

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## TATTOOING AND ITS SUCCESSFUL REMOVAL.

By A. H. OHMANN-DUMESNIL, A. M., M. D.,

PROFESSOR OF DERMATOLOGY AND SYPHILOLOGY  
IN THE ST. LOUIS COLLEGE OF PHYSICIAN AND SURGEONS;  
CONSULTING, DERM-TORRIST TO THE ST. LOUIS CITY AND FEMALE HOSPITALS;  
DERMATOLOGIST TO THE ALEXIAN BROTHERS' HOSPITAL,  
FITZ'S HOSPITAL, POLYCLINIC AND EMERGENCY HOSPITAL, ETC.

TATTOOING is a practice which seems to be almost universally disseminated on the globe. Among savage tribes and nations it is a species of totemism indicative of the particular tribe to which the individual belongs, or it is a mark of rank, according as the figures are distributed and the manner in which they are made. The process consists essentially in introducing, by means of some sharp instrument, India ink, cinnabar, or indigo into the skin, thereby producing an indelible mark which to all intents and purposes persists during the lifetime of the subject of the process. While there can be no doubt as to the dissemination of the custom, there does seem to be some question regarding its antiquity. A search through literature shows it to be very ancient indeed, going back to prehistoric times. Traditions are extant which purport to allege for it a divine origin. Be this as it may, there is no doubt whatever that it is a very ancient custom.

A classification of tattoo marks has been attempted, and various authors have given varieties and divisions thereof, which may be all included in the following general divisions:

I. Ornamental.

II. Symbolic.

III. Amatory.

IV. Obscene.

V. Miscellaneous.

In the first class we encounter the largest number of cases. We find included in the examples presented all those savages devoid of rank who are impelled to adorn their bodies with some designs under the idea that it lends beauty or grace to have these tattoo marks. There exist also a certain number of civilized Caucasians who have a certain morbid desire to have a decoration of some sort or other tattooed upon the skin, looking upon the matter as an ornament. We find examples of this in the form of rings, bracelets, stars, decorations, etc. In the latter class it is usually during early youth or adolescence that the practice is most generally indulged in, mature years showing completely the foolishness of such practices.

The second class, or the symbolic form, is perhaps the most widely disseminated of all. As indicated above, among savages it is not uncommon as a badge of authority or chieftainship. The principal and petty chiefs of every tribe have each one his peculiar mode of marking the body or

face or both, and can be easily recognized by this tattooing. It is to the savage what the uniform and insignia are to his civilized brother. In addition to this, it is adopted by many as a "totem," and is one of the most common forms of "totemism" which we have. The peculiarity of the tattooing indicates very clearly the tribe to which the bearer of the marks belongs, and, as it is practically permanent, a renegade can be very easily traced. Among civilized nations we find that symbolical tattooing is most common among sailors. Soldiers are perhaps next in frequency, and after them we find the various trades and occupations represented. Among sailors nautical emblems are naturally in the ascendant, from a simple anchor to a full-rigged man-of-war. They also are profuse in the number of designs which they carry, this being frequently so great as to cover two thirds of the integument. So far as the other members of this class are concerned, we do not find such a large number of subjects represented, although almost every occupation has its symbolic attributes tattooed.

In the third class we find a large representation. The most common amatory emblems are without doubt hearts, wreaths, initials, and true lovers' knots combined in every manner imaginable. Sailors are very prone to have these, and prostitutes are particularly favorable to them. The latter class is not always satisfied with initials merely, but the full name is frequently demanded. Mottoes of an amatory nature are also favorites, as well as terms of endearment, with or without accompanying initials. For a time it was quite a *fad* for respectable young ladies to have the initials of their *fiancés* tattooed upon the instep or some other equally inconspicuous place; but the disadvantages accompanying this custom when a match was "broken off" became so apparent that the custom was discontinued.

So far as I have been able to ascertain, the obscene variety of tattooing seems to be limited to two classes—soldiers and criminals—the practice being more prevalent among the former. All the most indecent and obscene pictures, mottoes, sentiments, and designs imaginable are represented. Nothing seems too lewd or debauched for these individuals to carry upon their persons in the indelible characters conferred by tattooing. Of course there are individuals without these classes who also carry analogous markings, but they are so few in number as to make but a very slight proportion of the whole.

In the last class may be included all those tattoo marks which represent nothing in particular and whose origin may be traced to an imitative desire, or to no particular reason. It is a noteworthy fact that many individuals possess tattooings who are unable to give any reason for their existence, alleging as a cause pure "cussedness." The designs in these cases are varied, being sometimes two or three dots, an anchor, a letter or something similar (occasionally the individual's name or initials), but, as a general rule, very limited in extent.

While the classification given above is general in character, it must not be supposed that every case seen will strictly conform to a type. We not infrequently find two types commingled, such as the symbolical and amatory, ornamental and symbolical, amatory and obscene, etc. As

an ethnological study that of tattooing is perhaps as interesting a branch as any other, casting as it does much light upon habits, customs, and individual peculiarities.

So far as the extent covered is concerned, we find that savages are more prone to have large areas tattooed than the civilized. A possible exception might be made in regard to a sort of professional tattooed subject which is now fast disappearing. Captain Costentenus, a Greek, was exhibited some years ago as the most extensively tattooed human being living. He was literally tattooed from head to foot, his eyelids and the interior of his ears having been subjected to the process, not to mention his genitals and his palms and soles. This led to a demand for tattooed men and women for dime museums, and a number were soon forthcoming, being marked quite extensively for the small sum of fifty dollars, only the visible portions being subjected to the operation. The Greek, however, remains to-day the most remarkable living example of tattooing ever seen, there being not a quarter inch of his body that is not the seat of some figure or part of it.

The methods of practicing tattooing vary somewhat. Among the South Sea Islanders the tattooing instrument consists of the serrated edge of a sharp shell which is dipped in the staining liquid and then driven into the skin with a sharp blow. Among northern tribes fish-bones are set in a frame and used in the same manner. Civilized man employs a small bunch of fine needles, varying in number from six to ten or twelve. This is dipped in a solution of India ink, vermilion, or indigo, and sharply driven into the integument so as to penetrate into the corium or subcutaneous connective tissue. When the proper pigments can not be obtained, charcoal or gunpowder finely pulverized is employed for the purpose. The ultimate effect of India ink, charcoal, or gunpowder is to give a blue stain, whereas vermilion or cinnabar remains red.

In addition to these deliberate methods of tattooing we also have accidental means, which are more disfiguring in their effects. Thus, powder-burns are by no means uncommon, occurring either through carelessness or purely accidentally. Here it is the face and hands which are most commonly affected. Injuries inflicted by mineral coal also result in the same manner, and it is for this reason that we find this particular variety of permanent blue stains most often in coal miners. Millwrights suffer from a somewhat analogous trouble known as siderosis. It shows itself as brownish stains on the hands and forearms, caused by particles of steel thrown off their chisel-hammers as they trim millstones. Drawers of gold wire also have staining of the hands and forearms, caused by puncture of the skin and deposit of minute particles of gold. Every metal whose oxides are colored is capable of producing its peculiar stains when it is accidentally introduced into the integument.

A question which naturally arises is as to the permanency of these stains. All tattoo marks are regarded as practically indelible. It is true that after a certain number of years they become more or less dim, but their presence can easily be verified. More especially is this true when they have been produced by the presence of carbon,

in the form of India ink or gunpowder. Vermilion, introduced at the same time as India ink, will disappear, while the latter still remains very apparent. Indigo will also



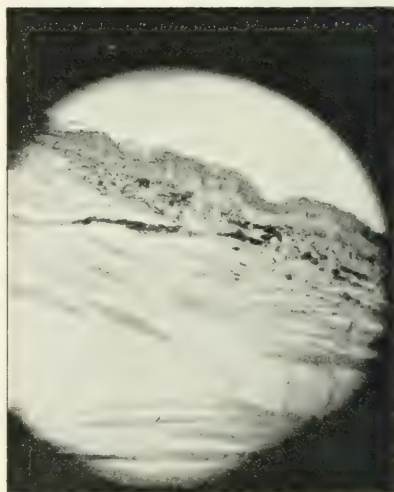
Tattooing on a woman's arm.

disappear almost completely after the lapse of years. I have never seen a clear record of India-ink tattooing disappearing completely except in the report of the case of the Tichborne claimant, in which some medical witnesses testified that tattooing could, in the course of twenty or more years, completely disappear. I have had occasion to see tattooing of over thirty years' standing, and it was still not only visible, but remarkably clear and distinct.

The pathology of tattooed skin is the keynote of the permanency of the condition as well as explanatory of the unsuccessful methods which have been proposed for its eradication. It also illustrates very clearly the rationale of a method, which I propose to give, which is successful, and the reasons therefor. When a section of tattooed skin is examined with the microscope a condition is immediately apparent. It is this: Comparatively large masses of a more or less black color are perceived in proximity to each other. They vary somewhat in size, but a low power will show them very distinctly. Beyond the integument again appears normal. The pigmentary masses of the normal coloration of the skin appear not only light in color, in comparison, but are apparently so insignificant as to elicit comparatively little attention. The large masses of carbon—for such they are—due to the tattooing, are located below the epidermis, scantily in the corium, more abundantly in the subcutaneous connective tissue, and almost always in the lymphatic ganglia as well, although in this last locality they do not make any perceptible showing upon the surface of the integument. It is this deep penetration of the particles of carbon and

their imprisonment in the interlacing meshes of connective tissue which renders their presence practically permanent. The change of color from black to blue is easily explained. That portion of the carbon which is inclosed in the epidermis appears black, but it is thrown off in a short time, leaving behind it the particles situated deeper in the skin. The transmission of light through the epidermis gives them a bluish appearance, as it does to all black substances located in that portion of the integument. The reason that cinnabar (vermilion) tattooing does not last so long as that of India ink is that it is not so diffusible and does not become enmeshed in the lymphatics so rapidly, if at all. In addition to this, cinnabar undergoes more or less chemical change and finally becomes absorbed, whereas carbon, the active coloring constituent of India ink, coal, gunpowder, etc., is unaltered and remains *in situ*. This is but a brief summary of the pathology, but it is sufficient to indicate the character of the condition which is to be dealt with in the treatment. It is certainly sufficiently clear to satisfactorily demonstrate the futility of any attempts at treatment wherein the structures of the epidermis alone are involved and the absolute necessity of dealing with the corium and subcutaneous structures to a limited extent, and in such a manner as not to produce scars or other losses of tissue so extensive as to result in scars or other permanent deformities.

The treatment of these apparently indelible marks is perhaps not the least interesting of the subject. As a rule, treatment is demanded in cases of more or less long standing, and various methods have been devised which are, as a rule, unsatisfactory in their results or leave scars which are worse looking than the original stains. The surgical



Cross-section of tattooed skin.

measures employed have all proved failures. The actual cautery, the galvano-cautery, the knife, the sharp spoon, and electrolysis, in order to be effective, have brought about such a destruction of tissue as resulted in ugly scars of greater



or less extent. The same may be said of the various caustics, so that it became apparent very early that these methods would have to be abandoned. A method was then suggested for powder-burns, immediately after their occurrence, which was fairly successful. This is the well-known bino-dide-of-ammonium and hydrochloric-acid process. Unfortunately, it is but partially successful, resulting in failure in many instances. Following this came Variot's treatment, which is said to be successful, but of which I know nothing from actual experience. It is a rather complicated process, and, from its description, it must be very painful and entail quite an amount of disfigurement for the time being, besides subjecting the patient to the possibility of acquiring scars. The method which I propose to detail is one which, it is alleged by Dr. Dupuy, originated with natives of the Indian Archipelago. However that may be, it is one which is certainly good, so far as the original idea is concerned, but which I have only found a success by using a particular preparation to carry it out.

The method may be briefly outlined as follows: The tattooed part from which it is desirable to remove the markings is, first of all, carefully washed with soap and water. Then a bunch of needles previously prepared, containing from six to ten very fine cambric needles tightly wound with silk thread, is dipped in glycerole of papoid (Johnson and Johnson) and driven with a sharp blow into the tattooed part. This is repeated over the entire stain. In fact, it is a tattooing with the glycerole of papoid. It goes without saying that this tattooing must be thorough or but an imperfect result will be obtained, on account of the depth at which the pigment is found. I have found it necessary, as a general rule, to go over certain parts a second time in order to obtain a good effect. A peculiarity in reference to this is that the process does not bring about the swelling or inflammatory reaction observed in tattooing with India ink or other pigments. This is probably due to the fact that, in the first place, the glycerole of papoid is not so irritating; and, in the second place, no buccal mucus is mixed with it, a habit which is not only filthy but dangerous, inasmuch as it may transmit syphilis, as has been observed in many instances. Not only this, but the micro-organisms of the mouth may act deleteriously by inducing septic conditions of greater or less virulence.

The rationale of the method is one which appears to me to be about as follows: The digestive principle of the papoid is disseminated about the deposit of pigment, thus liberating it. A portion is absorbed, in a finely divided state, by the lymphatics; another part probably finds its way into the upper layers of the epidermis and thence to the surface. In this manner we obtain a disappearance of the pigment. The glycerole of papoid is the only agent which I have found to act satisfactorily in this condition. I have tried solutions of papoid (Johnson and Johnson) made extemporaneously, and they did not procure good results, although the powdered papoid mitigated with some alkaline powder has acted very satisfactorily in old and indolent ulcers. Papain and papayotin made into solution have also proved complete failures in the treatment of tattoo marks in my hands, so that I would advise all who intend to use this method to confine

themselves to glycerole of papoid as made by Messrs. Johnson and Johnson, of New York.

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#### SUGGESTIONS FOR A

#### NEW METHOD OF TAKING EXPERT TESTIMONY.\*

By LANDON CARTER GRAY, M. D.,

PROFESSOR OF NERVOUS AND MENTAL DISEASE IN THE NEW YORK POLYCLINIC.

No one will venture to deny that the present method of taking the testimony of medical experts is unsatisfactory, for judges, lawyers, and jurymen regard these gentlemen with distrust, and medical men, as a rule, are very reluctant to go on the witness stand. To us physicians the reason for all this is perfectly obvious. The machinery of the law is not adequate for the purpose of obtaining for judges and juries the opinion of competent medical men. One of the latter, for example, who is to give his opinion to a jury upon a great question of medical science goes upon the witness

\* Read before the New York Society of Medical Jurisprudence, April 10, 1893.

stand in a radically false position at the very start, since he is regarded by everybody as a partisan, this opinion often being held most strenuously by the lawyers who have retained him. His successful passage through the cross-examination to which he will be subjected is generally dependent much more, I am sorry to say, upon his quickness of wit and repartee than upon his knowledge of medicine, as he is seldom a match for the trained disputants of the law, facile with experience in entrapping the unwary or the confused into real or seeming inconsistencies and apparent verbal contradictions. Twenty-four listening ears in the jury box, sounding portals to ignorant and untrained brains, drink in eagerly all that he says, and the jurymen reach their conclusions as to whether he is trustworthy or not much more upon the data furnished by his personal address, his coolness, and his adroitness, than through any exposition that he may offer them of the facts of science. Then comes the expert upon the other side to contradict him, for he must contradict him or he will be regarded as disloyal to those who are to pay him his fee. It constantly happens that a competent physician thus has his conclusions rejected by an incompetent one. Who is to decide between them? The theory of the law is that the lawyer of the competent witness should make the competency of the latter apparent, and that he should make equally clear the ignorance or the false conclusions of the incompetent witness. But any man familiar with our trials knows that this is very rarely done, for the very simple reason that the lawyer himself seldom has a sufficient knowledge of medicine to do this; so that between the theory and the practice there is so wide a divergence that in very few trials of this kind does it happen that an entirely incompetent man does not obtain as much credence with the jury as an entirely competent one. I have myself been present at many trials in which some acknowledged master of the art and science of medicine has been counterbalanced in the minds of the jury by some medical man who would not have been fit to act as his third or fourth assistant. Lawyers will say that this difference between the two men can be made plain to the jury. Theoretically this is so, but in practice how is it to be done? One way would be to ask the opinion of the competent man about the incompetent one, but if this is attempted a cry of professional jealousy is raised by the opposing lawyer, generally with deadly effect. Another way is to call in other medical men to testify as to the competency of the two men, but such testimony is difficult to obtain, because physicians are very reluctant to appear in such an invidious position, and, moreover, the testimony of six men against a man can almost always be offset by the testimony of six other men for him, provided the attorney of the latter is energetic enough. A third way is to show the incompetency of the incompetent man by a rigid cross-examination; but this will depend upon the cross-examining lawyer's knowledge of medicine, which, as I have already said, is generally an unknown factor, and frequently none at all. Then, too, the reporters in the court room, on the alert for what is piquant and sensational, blazon forth to the public garbled reports of what the competent man has said, which are in no wise offset by equally faulty sketches of what the

incompetent man has said, inasmuch as the latter has no particular reputation to lose and is therefore not vulnerable in this regard. The result of this system of obtaining medical testimony is that the competent physician goes home feeling that he has not been properly protected or reported, so that he shuns the next trial, and comes to believe that such leveling processes are too dangerous to his reputation to be often repeated. The lawyer ought to be able to appreciate these feelings very well. He takes precious good care that no question of legal science is passed upon by a jury. Ah, no! He puts his questions of legal science in the first place before a judge trained and educated in legal lore, and generally with an experience of years in a judicial capacity. Then, if he is not satisfied with this judge's decision, he brings the matter before the General Term, we will say, three judges sitting in a row, generally of still higher standing at the bar than the first judge. Still again, if he feels discontented, he goes before the Court of Appeals, a bench of judges generally of yet higher training; and if the question be one of the proper kind he may pass on to the Supreme Court of the United States. Yet we physicians are expected to be content with the haphazard conclusions passed upon our great questions of medical science by a body of twelve men taken from the body of the people, often illiterate, invariably ignorant even of the elements of science, and still more crassly ignorant of the great principles innate to the higher and intricate questions of our profession that are taught only to the ablest men after a decade or two of close application and wide experience. The history of our courts records many failures of justice in determining medical questions under our present system. I could keep you here many hours if I were to go into the details of all that have occurred in the last twenty years. Is there a man in this room to-night who believes that Guiteau was not insane? Yet he was hanged in the sight of the world as a sane man; and the mockery of justice was made apparent beyond cavil by the autopsy, which brought to view his distorted brain with its wasted convolutions and its diseased membranes, mute testimonials to the accuracy of conclusion of the few courageous scientists who had dared to stand up against the howling mob of medical politicians and tell the truth. Some of you may remember the contest in the northern part of this State, some ten or twelve years ago, over the will of the wife of an ex-President whose lunacy at the time of making the will was so conclusively established that not a medical witness could be found to take the stand and say that she was not insane; and yet the surrogate admitted the will to probate, and a beautiful city on the border of one of our western lakes is now cultivating art and aiding religion with money that rightfully belonged to the heirs of the testatrix. We all know that a year ago twelve jurymen and a judge undertook to decide the mental condition of a prominent banker in this city, the world-wide reputation of whose father had made him conspicuous, and that after two weeks of the most careful elucidation of the questions at issue the judge did not deem the jury competent to decide, confessed his own inability to do so, and relegated the whole question to a medical superintendent in the northern part of the State,

who, although entirely able, was not one whit more so than several physicians who testified at the trial, while his selection was a virtual confession of utter impotence in the legal machinery of the trial court.

How these defects in the law are to be remedied has been to me occasion for much thought, as well as many conferences with legal friends in whose judgment I have confidence. At the outset the keynote of the situation seems to me to be contained in Julius Caesar's remark, who, when he was asked why he divorced his wife Pompeia when he had stated his disbelief that she was any party to the plot of the profligate Clodius to obtain an entrance to her house when she was alone with her women during the festival of the Good Goddess, answered haughtily: "Caesar's wife must be above suspicion!" So must the medical expert be. He goes into the court now as a partisan. He should be there as a judge. There are two methods, in my opinion, by which this object can be effected:

First, the selection of medical men by the presiding judge to sit on the bench with him in an advisory capacity in trials which do not need juries.

Second, a conference of all the medical men in cases tried by a jury.

In England, I am told, it is the custom for the judge in admiralty cases to select a certain number of retired naval officers, called *assessors*, who sit with him upon the bench and advise him in regard to nautical matters. I see no reason why such a custom should not be introduced here in trials before a judge. The latter can always ascertain who the competent men are in the different branches of medicine, either by consulting two or three physicians of character and standing, which is generally well known in the lesser towns, or, in a large city like New York, by a letter addressed to the president of some such body as our Medical Society of the County of New York or our Academy of Medicine, which elects a new presiding officer every year or every few years, and which is therefore reasonably sure to be free from cliquism. In jury trials a conference of the medical experts has been the custom for some time in Leeds, England, and of it Sir James Fitzjames Stephen, Judge of the High Court of Justice, Queen's Bench Division, writes thus in his *History of the Criminal Law of England*, published in 1883: "For many years this course has been invariably pursued by all the most eminent physicians and surgeons in Leeds, and the result is that in trials at Leeds (where actions for injuries and railway accidents and the like are very common) the medical witnesses are hardly ever cross-examined at all, and it is by no means uncommon for them to be called on one side only. Such a practice," he goes on to say, "of course implies a high standard of honor and professional knowledge on the part of the witnesses employed to give evidence; but this is a matter for medical men. If they steadily refuse to act as counsel, and insist on knowing what is to be said on both sides before they testify, they need not fear cross-examination." These pithy words sum up the whole matter. Such a conference of the medical witnesses was suggested, as many of you will remember, some four years ago before this society by our distinguished fellow-member, the Hon. Willard Bartlett, who informs me that a

number of cases have been tried before him under this system with the most admirable results. The medical men who go into such a conference must agree upon the facts. No one of them, for instance, unless he is exceptionally pachydermatous and unscrupulous, would deny the existence of a wasted muscle which the others saw, or a paralyzed limb, a lack of feeling of the prick of a pin, a tremor, a broken vertebra, a fractured bone, a contracted or dilated pupil, or any of the other objective evidences of disease whose recognition constitutes the very primer of a physician's education. Even if one unscrupulous physician is shameless enough to deny that he has seen what the others have, his testimony will be worthless, because it would be contradicted by honest medical men testifying upon the same side of the case. The conferring physicians can therefore only differ in the conclusions which they may draw from what they have seen, and this would simplify the trial very greatly, because it is far easier to judge of the value of conclusions when the facts are admitted than it is to do so when the facts themselves are in doubt. Suppose, for example, that six physicians in conference admit that a man has been injured in a railway accident so that his spinal column is fractured and his lower limbs are completely paralyzed. Suppose that three of these physicians state their belief that the man will never recover, while the other three are equally positive that he will get perfectly well. All that the lawyers have to do is to bring into court medical books treating of such fractures and their consequences, collect the statistics, and conclusively prove that one or the other side must be mistaken. Some one may object that even the medical writers upon this subject will not be unanimous in their conclusions. Admit that this is so, even then it is perfectly feasible to compute an average and hence arrive at what the law calls a reasonable certainty.

The popular belief in the uncertainty of medical science is a popular error. Medicine to-day is, in many of its departments, one of the exact sciences. It is a remarkable tribute to his mental breadth that a man who has been so engrossed as Lord Salisbury has been in the varied and pressing demands of a leader of a great party in a vast empire should have recognized this fact as he has in a recent address at Oxford. I do not believe that six competent physicians in the city of New York would be at variance in any essential particulars in their recognition of the condition of a given patient. During the last winter it has been my fortune to have a consultation with eight neurologists about a certain patient in this city, and my diagnosis was agreed to by every one; nor was there any essential difference in the treatment advocated. For fourteen years a brother specialist of mine, now sitting in this room and known to you all, has upon many different occasions been engaged in the same expert trials in which I have been concerned, and during this long period of time there has never been a disagreement between us, as to either diagnosis or treatment, except in one case, where we agreed upon the facts but differed in our conclusions—this, too, although we have fully half the time been upon opposite sides. The truth of the matter is that medicine has, to a very large degree, emerged from its empirical period and passed into



one of approximate certainty. The attitudinizing, pompous physician of the past—solemn, white-cravated, eking out his dignity with a gold cane, and looking unutterably wise—has given place to the scientist; just as the rollicking, swaggering sailor of the olden time, gay of mien and jolly of air, profuse with his oaths and equally prodigal of his money, has made way for the educated engineer, thoroughly trained in the mechanism of the intricate machinery of our modern ironclad and torpedo boat. That the popular error remains rooted is due to the lack of appreciation by the laity, and even by judges and lawyers, that medicine is now so vast a science that a man who may be an authority in one department of it may be an utter novice in another. There are now published each year in the civilized world over two thousand medical journals and hospital reports. Almost every large capital in the world has two or three weekly journals. Every large city has several that are issued each month, besides which there are a vast number published every quarter. There is now being published in Paris an *Annual of the Universal Medical Sciences*, an American enterprise, which for five years past has been published in Philadelphia, filling each year five octavo volumes, and containing only an abstract of the noteworthy publications during the year. Each department of medical and surgical science is edited by some distinguished man, to whom the editors send clippings of the articles pertinent to his branch. During the last year this *Annual* quoted from two thousand one hundred and sixty-six different medical publications. There are ten great departments of modern medicine: General medicine, embracing what is known as general practice, such as abdominal and thoracic diseases, the general fevers, and the so-called zymotic diseases; general surgery; eye and ear diseases; laryngology, or diseases of the nasal and throat passages; neurology, or diseases of the mind and nervous system; dermatology, or diseases of the skin; genito-urinary surgery, with which is generally included venereal diseases; diseases of women; orthopaedic surgery, or diseases of the joints; sanitation and hygiene; and in the larger cities there are also specialists restricting themselves to the diseases of childhood. Although each one of these specialists must undergo a general training of years in the medical schools and hospitals in the anatomy and physiology of the human body, the varieties and properties of drugs, and the general way in which disease affects the body, and although in the less populated districts there is not sufficient population to warrant the growth of the physician beyond the stage of the general practitioner, yet in our great cities these ten great specialties are almost as distinct from one another as the dentist is from the physician, or the lawyer from the physician, or the shoemaker from the tailor, or the carpenter from the plumber. In none of these specialties does any man to-day obtain a great reputation until he has been from ten to twenty years in actual practice, and the most capable of minds can seldom master the technique of any one of them under a decade. So thoroughly is this fact recognized by the profession at large that no specialist in one line would venture for a moment to pit his opinion against that of a specialist in another. Each specialty has

its own society in the city of New York, often in lesser cities, and also a national society. There is in this country a congress of physicians and surgeons which meets every three years in Washington, composed of fourteen different special societies. Considering all these facts, it is evident that such a system as I have advocated to-night can never work adequately unless the medical advisers to a court are selected with careful regard to their fitness for dealing with the matter at issue. The selection by a judge of his family physician to pass upon a question of women's disease, orthopaedic surgery, neurology, etc., would not be a proper selection; for however able the family physician might have shown himself in dealing with the sicknesses of a family, and however great his natural ability might be, he would probably himself be the first to ask for a consultation with a specialist in any dangerous case outside of his line of general practice.

It is intimated to me by some of my legal friends that the system of medical assessors and conferences which I have proposed will be open to the objection that it is opposed to the principles of our law. To this I make answer that, if this be the case, the principles of our law are radically faulty. We are confronted with a condition of things which has grown out of our modern civilization, and which was not contemplated by our earlier law-makers. Are we to so blindly venerate the memory of our bygone jurists as to credit them with omniscience, and stand hopelessly shackled in the face of miscarriages of justice? Lord Coke said that the common law was the perfection of reason. In his recent interesting article upon the Chicago anarchists Judge Gary modernizes this into: "The common law is common sense." Certainly it seems to me, although I am no lawyer, that a law that ceases to be the embodiment of common sense has outlived its usefulness and ought to be superseded. No principles should stand in the way of necessary remedial measures.

I therefore ask the sober consideration of this society of my two suggestions—namely, first, the selection of medical men by the presiding judge to sit on the bench with him in an advisory capacity in trials which do not need juries; second, a conference of all the medical men in cases tried by a jury.

If the society will coincide with me in the advisability of these two remedial measures, I will ask for the appointment by the presiding officer of a proper committee to deliberate upon the matter and secure necessary legal enactments.

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**The Deutsche Poliklinik.**—The faculty held its tenth annual dinner at Arion Hall, Fifty-ninth Street and Park Avenue, on Wednesday evening, the 17th inst.

**The Alumni Association of the Presbyterian Hospital** held its second annual reunion on Thursday, the 11th inst. Officers for the ensuing year were elected as follows: President, Dr. W. K. Simpson; vice-president, Dr. D. B. Delavan; secretary and treasurer, Dr. David Boivard.

**The Stockholm Academy of Sciences**, says the *Fortschritte der Medizin*, has admitted Dr. Robert Koch, of Berlin, to foreign fellowship.

**The German Congress of Surgeons.**—Professor von Esmarch, of Kiel, has been elected president.

# ON THE PRACTICAL VALUE OF THE NEWER METHODS OF EXAMINATION IN THE DISEASES OF THE STOMACH,

WITH A CONSIDERATION OF THE  
INDICATIONS GIVEN FOR DIET AND TREATMENT BY SUCH EXAMINATIONS.

*Being part of a Discussion on the Newer Methods of  
Diagnosis and Treatment of Stomach and Intestinal Diseases.*

By HENRY L. ELSNER, M.D.

PROFESSOR OF CLINICAL MEDICINE, STRACUTE MEDICAL COLLEGE;  
PHYSICIAN TO ST. JOSEPH'S HOSPITAL;  
CONSULTING PHYSICIAN TO ST. ANN'S HOSPITAL, SYRACUSE, N. Y.

(Concluded from page 494.)

*Atrophy of the Gastric Follicles.*—The pathological condition which can be diagnosed with the greatest amount of certainty by our newer methods of examination is atrophy of the gastric follicles, or, as Ewald calls it, anadenia.

This may be either an independent lesion or an accompaniment of cancer, or it may complicate the later stages of chronic gastritis.

Einhorn (82) has spoken of a similar condition as "achylia gastrica" in a very able article, preferring this term—meaning lack of gastric juice—to any other.

Fenwick (83) was the first to call the attention of the profession to this condition in 1877, while Ewald (84), Kinnicut (85), and Boas (86) have added important data, which, in conjunction with those of Nothnagel (87), Osler (88), and Eisenlohr (89), show the clinical picture of the disease to correspond very closely with that of pernicious anæmia.

It is still an unsettled question whether the progressive anæmia always precedes the atrophy of the gastric follicles, or whether the latter is in a large measure due to the same underlying vice which gives rise to the former condition. It is certain, however (and Eisenlohr (90) has recently written an article which gives abundant clinical data), that several forms of anæmia and various system diseases of the cord are intimately associated with the anadenia of Ewald.

This fact was first insisted upon by Lichtheim (91), who never found the cord normal in cases of atrophy of the gastric follicles with pernicious anæmia.

In these cases the stomach is usually empty while fasting; the expressed contents, after a trial meal, contain neither mucus, HCl, pepsin, nor rennet. In all of these cases, where there is atrophy and attending absence of pepsin, Jaworski's method of administering a diluted HCl solution (200 to 300 c. c.), and siphoning it from the stomach in half an hour after its administration, during which time it should have stimulated the secretion of pepsin, and then testing the fluid as to its digestive power, will demonstrate the complete inactivity of the same. This test gives positive evidence of changed or unproductive peptic glands. This is a very valuable point in the differentiation between atrophy and carcinoma. In the latter there is usually, with similar treatment, a small quantity of pepsin present. These cases require for their more thorough study a microscopic examination of the blood, when poikilocytosis as well as microcytes with characteristic granular and large cells, as described by Ehrlich (92), will be demonstrated.

With an active motor function in the early stages of

these cases, and an active digestion in the duodenum and intestines, these patients remain in a fairly well nourished condition. In most cases, however, which have come to my notice, the process of atrophy extends to the intestinal glands and duodenum, when the disease runs a rapid course.

While the diagnosis of atrophy of the gastric follicles in the majority of cases can be made after a number of weeks of careful watching and chemical examination, Ewald (93), in his recent publication, mentions the difficulty experienced in distinguishing this condition from carcinoma and some of the more severe gastric neuroses. The form of carcinoma which is most readily confounded with simple atrophy is the infiltrating variety. Here physical signs avail little, for aside from the compensatory hypertrophy of the muscularis there may be no constriction at the pylorus, and consequently no gastrectasia. In these cases the microscopical examination of the expressed fluid will afford data for distinction; the carcinomatous stomach contents will, as a rule, contain altered blood pigment, though hæmatemesis be absent, while with atrophy its presence is unknown.

All of the chemical characteristics mentioned in conjunction with the study of atrophy may be present in cases of grave neuroses, or nervous anachlorhydria; indeed, these cases may assume such a serious aspect as to simulate infiltrating carcinoma. Ewald, in the article above quoted, after mentioning some of the differential points already rehearsed, says that "for the differentiation of anadenia from severe neuroses there are as yet no characteristic symptoms."

The neuroses simulating achylia are usually associated with general disturbances of the system, so that it is possible to recognize evidences of hysteria, neurasthenia, or spinal irritation, and thus establish the neuro-psychic element.

As able a diagnostician as Ewald reports the case of a woman in whom he had all of the symptoms which seemed to justify the diagnosis of nervous anacidia, and which he made after long-continued watching. The woman under treatment improved, and returned from Berlin to her home in Russia, where, after a few weeks, a tumor of the liver was palpable and another in the epigastric region. The early symptoms were undoubtedly connected with development of the case.

*Gastritis.*—The large quantity of mucus removed by the tube in the average cases of gastritis must serve, in conjunction with the chemical examination of the stomach contents, to make the diagnosis of that disease comparatively easy. In the milder cases of gastritis free hydrochloric acid is present in reduced quantity at the height of the digestive process.

With a progression of the disease there is usually entire absence of free HCl, traces of peptone, rennet absent, propeptone present. With the waning of free HCl, pepsin is absent in like proportion. In many of the more severe cases peptonization may still progress, until in the later stages, if the disease is unrelieved, complete atrophy, with its characteristic anomalies, finish the picture of the disease.

In these cases the reaction of the stomach contents is strongly acid, a condition produced by the presence of the organic acids (lactic, acetic, butyric, and fatty acids), mainly due to the fermentation of the carbohydrates.

Usually the motor function is found disturbed; there is an atony corresponding with that so often found in the bladder muscle (Rosenheim (94)), which may be functional or due to interstitial overgrowth, or degeneration of the muscular coat. As the disease advances, the absorptive function gradually gives way with the destruction of the epithelial elements.

*Hyperacidity.*—The disease with which hyperacidity is most frequently associated is ulcer of the stomach. There is a condition of superacidity and hypersecretion, to which we will also refer later in this article, which may exist without ulceration of the gastric mucous membrane.

Riegel (95) was the first to call our attention to the fact that with ulcer of the stomach there is, as a rule, a conspicuously high percentage of HCl, and Van den Velden (96) has demonstrated beyond controversy that in many cases of ulcer of the stomach the chyme contains an abnormally great amount of the acid. In considering the diagnosis of simple typical ulcer of the stomach before an assemblage of educated physicians, I feel that I will be sustained in making the assertion that in the majority of these cases there are sufficient data to make clear the diagnosis without recourse to the chemical examination of the stomach contents which we are to-day considering. The age of the patient, the characteristic anæmia, the microscopical appearance of the blood, the menstrual anomalies, oftentimes the hæmatemesis, the character of the pain, with the time of its occurrence—all these give sufficient data in the ordinary case to make the diagnosis clear.

On the other hand, there are cases in which the usual symptoms fail to clear the field for an easy and positive diagnosis. The case may be atypical, or there may be a combination of circumstances with symptoms which make differentiation difficult, and we are consequently forced to resort to our tests for a solution of the question.

It is safe to teach that in all cases of ulcer of the stomach the stomach tube should not be used without great caution, and only in cases where its use is made imperative for the purpose of diagnosing the existing condition when other means fail.

Ewald, in his work, asks the question whether it is justifiable or necessary in a case of gastric ulcer to introduce the stomach tube. In answering, he says: "You know that until recently this question was answered in the negative. The introduction of the soft, flexible tube has reduced the dangers very materially, but they are by no means overcome; and when we consider how easily vomiting and retching are provoked, the tube will not be introduced without a thorough appreciation of the facts enumerated, and the adoption of means to prevent accidents which may lead to serious results." In no case of stomach disease, no matter what lesion we suspect, would it be wise to resort to the use of the tube for purposes of diagnosis during the persistence of hæmatemesis; or the presence of symptoms which are suggestive of acute localized perito-

nitic or acute gastritis. In these cases the stomach remains a *noli me tangere* (Rosenheim (97)). It may be concluded that in cases of ulcer in which there is no gastrectasia the motor function is usually good, as is also the absorptive; that the secretory function in the great majority of cases (as shown by Van den Velden (98), Riegel (99), and Jaworski (100)) is associated with hyperacidity.

As a rule, and this has many exceptions, according to my experience, HCl is present in quantity to exceed 0.3 per cent. after a simple test breakfast, and with a full Riegel-Leube meal it may reach as high as 0.6 per cent. In one third of the cases of ulcer the acidity is found normal (Rosenheim (101)), while in other cases the quantity of HCl may be markedly reduced. In the latter, cancerous degeneration of the base of an ulcer may be strongly suspected, when an ultimate anacidity may be expected before death, or there may be with reduced HCl beginning involvement of the glandular elements of the mucous membrane (Rosenheim (102)).

Riegel (103) reports three hundred and eighty-two analyses of the stomach contents in forty-two cases of ulcer of the stomach, in which he found the percentage of free HCl—at the height of digestion abnormally high—values of 0.4 to 0.5 per cent.

Gerhardt (104) reported twenty-four cases of gastric ulcer with presence of HCl, as shown by the color test in seventeen, while in seven there was no response.

Rosenheim (105), in eight cases, was able to demonstrate hyperacidity in two only; in four, HCl was within normal limits; in two there was subacidity.

Kinnicut (106) reports four cases, in all of which HCl was found, with thirty-one examinations after test meals, values of 0.17 per cent. to 0.23 per cent.

My own experience in six cases of ulcer of the stomach, with repeated examinations during the past three years (forty tests), leads me to conclude that in the majority of cases free HCl is present; that in two thirds of all cases there is an excess of HCl, and in one third there are normal and subnormal percentages.

With these facts and the statistics before us, we must conclude that in cases of ulcer the gastric juice always contains HCl, and usually an excess of it (Ewald (107)).

The chemical analyses in a case of stomach disease in which there are symptoms of both ulcer and cancer becomes of the greatest value to the physician and surgeon alike. The constant presence of free HCl, in a case where such differentiation becomes necessary, may be regarded as strong evidence in favor of ulcer of the stomach and absence of cancerous infiltration. The greatest difficulty in practice is oftentimes experienced in distinguishing between gastric ulcer, gallstone colic, and duodenal ulcer. A case which has been under treatment during the past winter demonstrated that fact very forcibly. Without giving details of the case, it may be said that the patient was a man, aged eighty-one years, who had renal colic during the active years of his life, and for seven years has had more or less severe pain in the epigastrium, usually more severe during the afternoon about four o'clock. No one tender spot could be found; the entire epigastrium seemed hypersensitive to



pressure. He had consulted prominent physicians in the East and West, with almost as many different diagnoses as physicians consulted, but without relief. For five weeks before he consulted me he resorted to morphine without benefit. At the first visit nothing could be elicited from the history which aided in making the diagnosis, but in examining the vomited matter, six hours after a meal of milk only, we found more free HCl than is normally present at the height of digestion after an ordinary trial meal (0.4 per cent.). The fluid contained both pepsin and rennet. After a trial meal of milk and egg albumin, it was found that there was marked hyperacidity (0.6 per cent.). This gave us abundant evidence, in conjunction with the examination of the vomited matter, to diagnosticate both hyperacidity and supersecretion. Close questioning revealed the fact that the patient, seven years before, had a well-marked intestinal hæmorrhage, which fact he forgot to give. The diagnosis was clear—duodenal ulcer with supersecretion. It would not have been made without chemical examination. Morphine, after a short struggle, was discontinued. Lavage with alkalies, resorcin, arsenious acid, and a suitable diet, rigorously followed, were substituted for his previous treatment. The aged patient is well, at least without a symptom, in the full possession of his faculties, relieved from the slavery which would soon have made him more wretched than the disease from which he was suffering.

Bucquoy (108) lays great stress in the diagnosis of duodenal ulcer on the following points:

1. "Sudden intestinal hæmorrhages in apparently healthy people, which tend to recur and produce a profound anæmia (hæmorrhage of the stomach may precede or accompany the melæna)."

2. "Pain in the right hypochondriac region coming on late, two or three hours after eating."

3. "Gastric crisis of extreme violence, the hæmorrhage being more apt to occur about the time of these attacks."

4. Osler (109) says: "The point upon which the greatest stress has been laid in the diagnosis of duodenal ulcer is the occurrence of melæna without hæmatemesis." To which I would add the great importance and value in doubtful cases of chemical examination to determine the degree of acidity and the amount of secretion.

*Gastric Neuroses.*—After a very thorough clinical consideration of the more frequent neuroses which were formerly included in the chapter of "nervous dyspepsia"—a term which Leube (110) still insists upon using—I am fully satisfied that, with but few exceptions, and to these I will refer later, the newer methods of chemical examination have added little to make the diagnosis easier, or in any way explain the many vagaries of these disorders, whose symptoms are as variable as the colors of the chameleon.

Leube holds that the diagnosis, or rather the suspicion that the disease is of nervous origin, is made a certainty by the examination of the stomach with the tube. He lays down the rule that, seven hours after the trial meal, the stomach is invariably empty. To this many take exception, and it appears to me with reason; while Leube grants that there are rare exceptions, he says "these ought not to upset the rule."

*Supersecretion and Hyperacidity.*—It is certain that these conditions exist oftener than has been suspected in the past. These conditions are usually associated. When we speak of supersecretion we include that pathological condition in which the excessive secretion gives a functionally active juice not only during the digestive period, but long after the stomach has been emptied of its food. In other words, it is not so much an increase during digestion as it is a continuous secretion, entirely independent of the digestive act.

Reichman (111) was the first to call our attention to this condition. Since his publication, Riegel (112) and Van den Velden (113) have added valuable reports of cases to our literature on the subject.

The examination of the vomited matter in these cases is of the utmost importance, for it not only reveals the presence of the hypersecretion when the stomach should be empty, but the hyperacidity as well. This must be the "exception" to which Riegel (114) refers when speaking of the value of the examination of the vomited matter in diseases of the stomach.

The symptoms in these cases are well marked. If long continued, we ultimately have motor insufficiency, in some cases almost complete atony of the muscular coat.

Gastralgia, recurring at intervals after great mental emotion or other excitement, is a prominent symptom.

Kinnicut (115) says: "I have fixed as high a limit as fifty cubic centimetres of gastric juice as a basis for a diagnosis of hypersecretion."

In a case which recently came to my notice I found, after washing out the stomach the previous night, on the following morning before food had been taken two hundred cubic centimetres of an acid fluid, with 0.15 per cent. HCl, pepsin, and rennet, as shown with the milk test. In this case there were repeated gastralgic attacks, requiring hypodermics of morphine, which have entirely ceased since the recognition of the disease and its proper treatment.

Sahl (116) found this condition present in the gastric crisis of tabes; it has also been observed in cases of melancholia, hysteria, neurasthenia, and many other neuroses.

The diagnosis is made, as above mentioned, by expressing the secretion after having washed out the stomach six or seven hours before, the patient fasting during the interval. It will be found that the fluid digests albumin readily, is without organic acids and peptone, has free HCl, is, as Kinnicut says, "hyperacid gastric juice."

It has been held by Talma (117) and also Suyling (118) that there is a neurosis which shows itself in a hyperæsthesia of the gastric mucous membrane, more particularly to HCl. Löwenthal (119) has failed to show, by the administration of HCl in large doses to perfectly healthy subjects, that there is such hyperæsthesia, and his experiments with subjects who have diseased stomachs, some of them ulcers, with HCl administration have been negative. The same he found to be true also with the organic acids, mainly lactic acid, with healthy subjects and those suffering from organic diseases.

It may be taken for granted that, in cases where there is pain after eating, which ceases when the gastric juice is

neutralized by alkalis, or diluted with water, or removed, a gastric ulcer may be strongly suspected, and not a neurosis or hyperæsthesia to HCl.

If gastric ulcer can be eliminated with certainty, we must suspect in these cases with supposed hyperæsthesia to HCl that the gastralgia is due to hæmorrhagic erosions.

The more the simple neuroses are studied, the more firmly and indelibly are impressed the facts that their recognition must depend largely on the presence of a well-defined neurotic habit, evidences of a combine of symptoms which, for want of a better and more scientific term, we must call neurasthenia—in many cases a faulty metabolism—and, excepting the supersecretion and hyperacidity without changes in the mucous membrane of the stomach and, as Klemperer has pointed out, reduced motor force, we can not rely for definite information upon the examination of the stomach contents.

From what has been said of the practical results of the examination of the stomach contents, you are able, without further infliction from me, to draw your own conclusions. Certain it is that by these newer methods we are made to understand *just what the stomach is doing*—a knowledge which is necessary in every doubtful case. No case of chronic disease of the stomach, in which the diagnosis can not positively be made, should fail to be examined, that the physician may thoroughly acquaint himself with the workings of that organ, not only for his own enlightenment, but for the greater satisfaction and benefit of his patients.

While the statement of Hirschfeld (120)—that “the chemical method of investigating the stomach has been to diseases of that organ what the ophthalmoscope is to the diseases of the eye”—may be somewhat exaggerated, the tempered conclusions of Ewald (121) may be readily accepted. He says: “I consider the diagnostic importance of the expression method to be so great and the safety to be absolute, a very few cases excepted, that I would reproach myself had I neglected to resort to it in any doubtful case.”

#### INDICATIONS FOR TREATMENT AND DIET—MEDICAL AND SURGICAL.

*Medical.*—It naturally occurs to us, in considering the question of the practical value of the chemical examinations in diseases of the stomach, to inquire into the indications which have been offered for diet and treatment as an outcome of such study.

It may be said, and I think with a considerable degree of certainty, that the dietetics and therapeutics of gastrointestinal diseases have been placed on a more solid and scientific basis by these newer methods.

It is not within my province to dilate upon these subjects, but I wish to add a few observations which seemed to me indicated after considering the work which we have been doing in this domain.

First, it needs no comment to prove that an exact diagnosis has therapeutic advantages; second, we have learned from our recent studies that the most important treatment of stomach diseases must always remain dietetic, and must depend for its successful administration upon the chemical

constitution of the digestive fluid, whether anacid, hyperacid, or normal.

Without such knowledge we are groping in the dark, unscientifically and unsuccessfully. What the dietetic rules are each case will indicate for itself, if the stomach contents are macroscopically, microscopically, and chemically examined.

The satisfaction which a physician feels in outlining a diet which he knows will positively find a suitable reception and ultimate assimilation must be sufficient recompense for the extra time which he has taken to study his case. It would be as nonsensical to give a patient with hyperacidity a diet composed of starchy food as it would be unwise and fatal to give a meat diet to one without a digestive fluid containing the necessary HCl for its digestion.

Another much-abused method of treatment has been the lavage of the stomach. How often have we heard of its use when absolutely no indications demanded it! Useful and beneficial only when indicated, the tube must be used only with caution and judgment. (See Rosenheim's (122) exhaustive article, Ueber die Magendousche, *Therap. Monatshefte*, August, 1892.)

Ever since the discovery of the fact that pepsin and hydrochloric acid are the important constituents of the gastric juice, physicians have been giving these drugs, in many cases without reference to the pathological condition of the stomach or the chemical constitution of the secretion which they were expected to modify or supplement.

To-day, when it is comparatively easy to inform one's self of the condition of stomach digestion, drugs, more particularly pepsin and HCl, are administered empirically to the detriment of the patient, and in many cases their long-continued use has given rise to a glandular inactivity or true atrophy of disuse which can never be remedied.

If we take into consideration the results which have been recently obtained from repeated experiments with alkalis and acids in healthy stomachs, we can readily epitomize the indications for their administration and explain the statement which is made by Leube (123) when speaking of the effect of Carlsbad water. He says: “Carbonate of soda not only overcomes the superfluous acidity of the stomach, but, what is more important, it has the power of stimulating the mucous membrane to renewed energy and a further secretion of gastric juice.”

The truth of that statement is demonstrated by Jaworski (124), and also by Geigel and Abend (125), who found, after repeated experiments on healthy and diseased stomachs, that moderate doses of the sodium salt (one to two grammes) neutralize a part of the gastric juice; but the alkaline reaction which first follows their administration is soon followed by an acid secretion in excess of that preceding the administration of the alkali (Mesnil (126)).

Small doses (0.5 gramme) are more likely to neutralize a normal acid secretion, while with hyperacidity we must use the larger doses of the sodium salt in conjunction with our mechanical treatment, for we have not only the original hyperacidity to overcome, but must administer sufficient to neutralize the excess of the free acid secreted as a result of the stimulation by the alkali. From the foregoing it is

clear that the alkaline treatment of stomach diseases must be limited to such cases as have an excess of HCl, or a deficiency of the acid with glandular structures intact, or a sufficient remnant to respond to stimulus. (Subacidity, chlorosis, and nervous dyspepsia with subacidity—Ritter and Hirsch (127), Manassein (128), Cahn and Mering (129).)

On the other hand, HCl increases the pepsin but not the HCl (Mesnil (130)). Excess of HCl is very likely to reduce the secretion of the gastric juice and the percentage of HCl (Jaworski (131)). HCl does not increase the secretion in proportion to the size of the dose administered. HCl and pepsin are therefore of the greatest value in those cases where the mucous membrane and glands are diseased, as we find in catarrhal inflammation, glandular atrophy, and amyloid degeneration (here in small doses only to protect the remnant of glands still functionally active). Also in carcinomatous disease, nodular and infiltrating.

If HCl could be administered in sufficiently large doses without corroding the mucous membrane of the stomach, it would at once relieve the severest case of hyperacidity by checking the secretion of the gastric juice.

To improve or influence the absorptive function of the stomach, we possess no agent, unless it be electricity.

The motor function will be considered by another more worthy and competent to enlighten you with the result of his ripe experience.

*Surgical.*—It has occurred to me, in considering this question, to consider the value of the newer examinations as related to surgery. The literature on this subject has until recently been very meager, and, as the study of my cases was intended for diagnosis and medical treatment only, I felt justified for the preparation of this paper in consulting many of the leading surgeons of this country, England, Germany, and Austria for an unbiased opinion on this important question. To them I sent circular letters asking for a response to the following questions, and such other information as they might offer relating to the clinical data and to the literature of the subject. (Forty such letters were written, to which I have received thirty-eight replies. At this time and place I thank those earnest workers who so kindly and fully answered and aided me in my work.)

I. Have you in any case been led by a chemical examination of the stomach contents to operate for disease of that organ?

II. Do you believe that such analysis will aid in the early recognition of malignant diseases and thus lead to early radical operations for their removal?

III. Have you formed any opinion of the practical value of the chemical analysis of the stomach contents in the recognition of stomach disease?

As a rule, the answers were not separately given. The majority have held, in answer to the first question mainly, that while chemical analyses give evidence of great importance, they can be considered as confirmatory only, and can not be relied upon alone in deciding the question of operative interference.

Those consulted who had no personal experience, or in-

sufficient to warrant conclusions, were Sir Joseph Lister, Sir William MacCormac, McBurney, Davies-Colley, and Vander Veer.

Billroth writes: "It is true that free HCl is more often absent from the gastric juice in gastric cancer than in ulcer; but this phenomenon is not sufficiently constant and may be physiological. It is not sufficiently definite to be of practical value."

Among those who would not rely on chemical analysis for surgical indications we find besides Billroth, Thomas Bryant, Jessett, of London; Klemperer, Willy Meyer, Leo, Marcey, Leube, Goodhart, W. H. H. Jacobson (London), Boas, Mayo Robson, Lange, of New York, Weir, and Halsted.

Most of these grant the fact that the results can only be considered confirmatory, a link in the chain of evidence which at times is of great importance as an adjunct. Senn, who might be included in the foregoing, writes: "I would never rely on chemical examination in deciding upon the propriety of operative interference. I regard chemical tests of value in making an early differential diagnosis between ulcer and carcinoma." Senn recognizes the great value of these methods without relying upon them exclusively. The answers of Keen and Bull to the questions asked correspond very closely to those of Senn. Weir, after his large experience, says: "I have received help, but never relied upon chemical gastric evidences alone in considering the question of surgical interference in carcinoma of the stomach."

Pilcher reports a case in his answer which shows a failure of the tests. In his case there was pyloric stenosis, with all chemical tests indicating non-malignant disease; he did a gastro-enterostomy, finding a typical scirrhus.

Czerny, of Heidelberg, besides his answer, in which he grants a confirmatory value to the chemical tests, sends his monograph, taken from the *Beiträge zur klinischen Chirurgie*, in which he reports twenty resections of the pylorus for cancer and thirteen exploratory laparotomies, in most of which the tests were considered and were of value in the process of differentiation.

In Case IX he found HCl absent at one time after a test meal, and present at another in the vomited matter, with tumor and constriction at the pylorus. The growth was due to a simple ulcer with enormous hypertrophy and consequent stenosis. Czerny afterward upbraided himself for paying so little attention to the results of his chemical tests.

Unless I mistake the meaning of the answers received from Roswell Park, Einhorn, Stockton, Ewald, and even Riegel and Kinnicut (the latter has written a valuable paper on this subject in conjunction with Bull), they do not wish to rely in doubtful cases on the chemical tests alone. I judge still further that Riegel, Kinnicut, Ewald, Stockton, and Einhorn are positive in their belief that in the majority of doubtful cases, where repeated examinations are made and free HCl is absent, that the diagnosis of cancer is justified, and they probably agree with Boas that with such anacidity and the presence of two classical symptoms, such as emaciation, œdema, or tumor, the chances are decidedly



in favor of cancer, and the surgeon has ample indications for an exploratory laparotomy.

This exploratory operation (from an extended study of the literature of this subject with which it is useless to burden you), we are positive, is as a rule without danger, and can ultimately lead only to the saving of many lives which are now sacrificed for want of a consideration of all the diagnostic means which ought to be used for the conscientious study of these cases.

It may be held that while the surgeon is not justified in making a diagnosis from the chemical examination alone, he ought not to operate without a thorough understanding of the working ability of the stomach which claims his attention.

So far as the simple diagnosis of pyloric stricture is concerned, no method can equal in value the revelation made by the stomach tube.

It is not within the province of this paper to dilate upon the results or advantages of the different operations for the removal of gastric cancer. This can be studied from the statistics of Rydigier, Czerny, and McArdle. Suffice it to say that in sixty-two pylorus resections twenty-seven (or 43.5 per cent.) were cured (Rosenheim (132)).

In fifty-one per cent. of all cases of gastric cancers (Ewald (133)) the growth is situated at the pylorus; the medical treatment of this condition gives an absolutely hopeless prognosis; the surgical offers some hope, as seen from the above statistics and also from a further study of all the cases reported in Virchow and Hirsch's *Jahresberichte* during the past six years. The consensus of opinion of all consulted tends to strengthen the conclusion that *pyloric cancer is a purely surgical affection*; its diagnosis, if it can be made early, must be sufficient indication for surgical treatment.

The modern surgeon has learned two valuable points from a consideration of this subject:

1. Without the possibility of emptying the stomach into the duodenum it is impossible to live.

2. The obstruction at the pylorus removed, chemical analyses have proved beyond doubt the ability of the stomach after a few months to regain its motor activity when the duodenum carries on the further digestion.

With methods which would lead to the earlier recognition of these cases, why are we not justified in hoping for results which will approximate those which follow the early removal of cancers from other organs of the body?

Appreciate if you will the positive fact that no operator has, after the removal of the pylorus or any part of the stomach for cancerous disease, had a functionally active stomach left, but that after removal of the pylorus the motor function of the stomach, as shown in Mikulicz's Klinik (134), also by Rosenheim (135), is sufficiently improved in three months to empty the stomach of its contents in five hours and a half, that the duodenum and small intestines assume the stomach's work, and you have sufficient data to justify you in concluding that in no field of medicine is concerted action of the physician and the surgeon more necessary for the benefit of mankind.

While at present we are forced to repeat that our tests

are strongly confirmatory, we are certainly working in the right direction. With a larger experience and more exact methods of examination which must be evolved from the present, we entertain for the future a well-founded hope of diagnosing malignant diseases of the stomach before adhesions are formed, before the tumor becomes of a size which makes it easily palpable with its surroundings infiltrated.

When the skilled physician reaches such a stage of proficiency in the art of diagnosis, the surgeon as his helpmate will no longer be charged with making autopsies *in vivo*, many lives will be prolonged, possibly saved, and medicine will have become more nearly an exact science.

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## HYSTERICAL APHONIA

WITH A PERFECT SINGING VOICE.

By E. HARRISON GRIFFIN, M.D.,

LECTURER ON DISEASES OF THE THROAT AND NOSE  
 AT BELLEVUE HOSPITAL MEDICAL COLLEGE;  
 ATTENDING SURGEON FOR THE THROAT AND NOSE,  
 OUTDOOR DEPARTMENT OF BELLEVUE HOSPITAL, NEW YORK.

AN interesting case of hysterical aphonia with an unusual history came under my care in November, 1892:

The patient, a girl, aged eighteen, of German parentage, came complaining of loss of voice. She was able to converse in a low whisper, but was not able to raise her voice so that it could be heard any distance.

The aphonia had lasted for a little over eleven months. It had come on suddenly after she had had a nap in the afternoon. Before her sleep her voice had been perfectly normal, but upon awakening she was much surprised to find her voice completely lost. Her occupation when she applied for treatment was sewing on coats, but she was very anxious to regain her voice so that she could take a position in some family and do general housework.

The treatment previous to her visit to the clinic had consisted in electricity to her throat and the inhalation of steam. Some internal medicines had also been prescribed. These had failed to benefit her.

This information was given in a low, hoarse whisper; she was unable to elevate her speaking voice above this key. She surprised me at this visit by telling me that she could sing.

I had her run over the scale and found the high, middle, and low register perfect and not a sign of hoarseness when she vocalized.

She sang a few lines of a song with which she was familiar, and during the singing the words were pronounced freely, clearly, and loudly. The volume of her voice would fill a large room.

I tried her on *do, re, mi*, etc., in a singing voice, and then the syllables were rendered free from any hoarseness and were given without any effort or difficulty. When she attempted to speak these sounds her voice again sank to a low whisper. Her speaking voice had remained constantly bad without any improvement for over eleven months.

An examination of the larynx showed the cords to be perfectly normal as to color and that they approximated closely, an unusual condition in this form of aphonia.

When she sounded *A* short and sharp in a speaking voice the false cords seemed to crowd over the true cords, but when she sounded *A* in a singing voice the larynx presented a normal appearance.

I prescribed a mixture of iron and strychnine and applied a current of electricity to her neck. After a week's trial her voice was as imperfect as before. There was not the slightest improvement.

One day when I was noting some facts in regard to her history her voice was so indistinct that I told her to strike a note and sing her replies to me. The minute her voice took a musical key the answers to my questions were given clear and loud.

I made her now repeat some sentences after me, telling her that I should alter the tone of my voice, but she was to follow in exactly the same key that my voice assumed. I first impressed upon her that I should sing the sentences. After I had run over several sentences, arranging the words to the scale in music, I changed my voice to a speaking voice and told her to follow me in the same tone.

She repeated about five sentences one after another in a speaking voice free and clear.

The minute she heard the word *speak* her voice again assumed the huskiness and she told me, "I can't speak." Once again I repeated the foregoing treatment and before she left she was able to speak loudly and plainly.

During the first week the aphonia would return. A quick, sharp word or starting her in a singing tone and then assuming a speaking one would bring back her normal voice.

At the date of the report (April 18, 1893) her voice has been constantly good and her aphonia has not returned. This patient menstruated regularly and gave no history of any uterine trouble.

I have found that this form of aphonia, although more common in women, does exist in men. Some years ago a young man applied to me for a loss of voice that had existed for some months. I found his larynx normal with the exception of an imperfect approximation of the cords. The patient was a nervous, hysterical individual. He was drinking eight cups of coffee a day and was troubled with "bad dreams."

A stopping of the coffee, a little bromide, and a great deal of moral suasion completed a cure.

These cases are interesting as at times they are liable to be mistaken for some serious affection of the larynx. The length of time the hoarseness has existed may suggest a tumor or a paralysis, but an examination of the larynx renders the diagnosis simple and easy.

112 WEST FORTY-FIFTH STREET.

**The New York State Medical Association.**—The ninth annual meeting of the Fifth District Branch will be held in Wurzier's Building, No. 315 Washington Street, Brooklyn, on Tuesday, the 23d inst., at 11 A. M., under the presidency of Dr. S. B. W. McLeod, of New York. In the afternoon papers are to be read as follows: The Prevention of Blindness from Ophthalmia Neonatorum, by Dr. L. A. W. Alleman; Chronic Nasal Catarrh, and what the General Practitioner can do for it, by Dr. Edward J. Bermingham; The Treatment of Certain Forms of Fracture, by Dr. Charles Phelps; The Management of Hip Disease, by Dr. A. B. Judson.

**The University of Heidelberg.**—Privat-docent and prosector Friedrich Maurer, says the *Fortschritte der Medicin*, has been made extraordinary professor of anatomy.



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THE EARLY DIAGNOSIS OF SMALL-POX.

NOWADAYS we are all—that is, those of us who are not in the service of a board of health or on quarantine duty—"out of practice" as regards small-pox. Now that persistent vaccination has almost suppressed the disease, it so rarely comes under the physician's observation that when it does turn up it takes him off his guard, so that, as Dr. Thomas D. Savill puts it, in an article published in the *Lancet* for April 29th, he is very apt to accept the patient's diagnosis of "heat bumps." In that article Dr. Savill gives some excellent hints calculated to enable the practitioner to escape such a pitfall. In the first place, one should never take it for granted that small-pox is out of the question because the disease is not "about"; a casual source of infection may come to light at any time and in any place, only after it has served as the starting-point for what may prove to be a devastating epidemic.

The initial fever is sudden in its advent, and on the first day of the illness the temperature runs up to 102° F. or more. This brusque advent of pyrexia, the author says, is met with in only two other acute specific diseases that are common in such a climate as that of England—namely, scarlet fever and erysipelas. Of the symptoms that accompany the initial fever, severe pain in the back and nausea or vomiting are prominent. Both are usually more pronounced than in either scarlet fever or erysipelas, and the failure of the cutaneous lesions characteristic of one or the other of those diseases to appear within from thirty to forty hours will exclude them. The rash that in exceptional cases precedes the true eruption of small-pox may, however, be scarlatiniform, but in only about one fifth of the cases investigated by the author has it appeared earlier than on the third day. As to the true exanthem, it is chiefly to be distinguished from that of measles. In both measles and small-pox the eruption appears on the fourth day, and in both it is papular, but in measles the papular character is less pronounced and rapidly grows fainter, while in small-pox the "shotty" feel goes on increasing up to the time of vesiculation; at the end of twelve hours the efflorescences of measles begin to fade, moreover, but the small-pox papules get harder and harder. This "shotty" feel is so characteristic that by passing the hand over the forehead and cheeks one might almost diagnose measles in the dark. In spite of all this, doubtful cases will now and then occur, and in all such cases the patient should be secluded.

CREOLIN IN THE TREATMENT OF DISEASED MUCOUS  
AND SEROUS SURFACES.

DR. G. A. FACKLER, in the *Ohio Medical Journal* for April, proposes that a freer use of creolin be made in diseases of the

urinary bladder and other parts of the body that are out of sight. The employment of this remedy in dysentery and colitis was early brought into notice, also its use as a disinfecting wash for the rectum, the vagina, and the buccal cavity. Dr. Fackler goes somewhat further and uses creolin solutions for washing out abscess cavities, irrigating the lower bowel, the pleural cavity, and the genito-urinary tract. He maintains that weak and non-toxic solutions of creolin may be employed in those passages and cavities without that danger from absorption that attends the use of potent solutions of corrosive sublimate and carbolic acid.

The urinary bladder, according to the writer's experience, has been especially intolerant of the agents just referred to, and boric acid has been widely used as the least dangerous of the cleansing agents suitable to affections of the cystic lining membrane.

During the past year Dr. Fackler has used a one-half to one-per cent. solution of creolin in cases in which irrigation of the bladder was required. His results have been far more satisfactory than had been obtained in the use of boric acid. He has been especially well satisfied with the results in a case of gonorrhoeal cystitis, for he is able to record that the use of three creolin injections put an end to the urethral and vesical symptoms at the same time. He quotes the reports of Zielewicz as his authority for teaching that a creolin injection is superior to many others (of antiseptics) for the relief of cystitis caused by hypertrophied prostate.

In regard to the treatment of the pleural cavity in cases of empyema, Dr. Fackler suggests that a cleansing creolin injection offers to the surgeon a good means of antiseptic treatment after opening the cavity. Surgeons, as a rule, he says, have been hampered in carrying out the disinfection steps of these operations by the dread of retention of such agents as carbolic acid and mercury bichloride. By the use of a weak solution of creolin, he believes, a very safe and effective disinfection may be had and the patient's prospect of recovery be greatly improved.

MINOR PARAGRAPHS.

TOILET SOAPS ANALYZED.

The *Pharmacological Record* for May is devoted to an analytical study of the toilet soaps to be found in the London market. Its conclusions are pertinent the whole world round—namely, first, there are too many soaps offered that contain free alkali, either caustic or carbonated, in quantities injurious to the skin; secondly, there are other soaps made from cheap and inferior grades of fat, having a more or less rancid character, and, further, exhibiting great variation in the proportion of water present—interesting to the consumer as an economic factor—and having as their superfatting components glycerin fats, petroleum, and terpenes; thirdly, there are low grades of soap in which not only is resin substituted for refined fat, but there are added inorganic substances, such as chalk, alumina, and finely powdered silica, and organic substances, such as starch, dextrin, and "size." In one case a highly colored soap was found to contain a "vermilion" obtained from a mercuric salt, and aniline coloring matters were sometimes found. While their injurious nature may not be said to be demon-

strated, they are reported as unnecessary and undesirable. High coloration in soaps is generally compatible with other materials of an inferior sort. A soap that is superfatted with lanolin is specially commended as "agreeable and beneficial in its use, and obtainable at the same rate as the inferior grades." It is not sufficient that an article purports to be a "lanolin soap," for that will probably be professed to be made by a host of manufacturers as soon as this investigation is noised abroad; but there should be a confirmation by chemical tests or by a knowledge of the reliability of the manufacturer. The manner of making the chemical tests is given in the *Record*. The writers in that journal assert that legislative steps should be taken to protect the public against the use of injurious chemicals by the soapmakers.

#### A BALTIMORE GIRL'S IMPRESSION OF MEDICAL WOMEN.

THE *Sun* lately published an account of the rather heartless treatment accorded by passers-by to a lady doctor of Brooklyn who had slipped on the street and received a disabling injury of her knee. Taking the affair as a text, a Baltimore girl has since written to the editor of the *Sun* as follows: "Sir—I know why the woman doctor you told about on Sunday had such a bad time. She is a woman doctor—that explains it. I never saw one yet who wasn't peculiar looking, and didn't get herself up more as a doctor than a woman. They wear a sort of dress-reform costume, short skirts, no corsets, a mannish hat. Somehow or other they do not look one bit attractive or womanly. I am a good-hearted young woman, stop and give a beggar five or ten cents, help old people across streets, and all of that; and yet I would really have to make an effort to do any Good-Samaritan act to a woman doctor. Why, my brother-in-law, who is a doctor, told me he had never yet heard one of them talk about measles. It is always some horrible unmentionable disease they must harp on. You see, all that tells on a woman's appearance, even when she isn't unfortunate enough to fall down and break her knee. Under those circumstances, dear me! she must look a pretty sorry sort of object. I have always longed to be rich for two reasons: One is that I might have horses so that they need not wear check reins, and the other is that some one would come to me for a subscription for a woman's medical college, so I could refuse." This, we are obliged to say, is not a fair picture of the medical women of New York, many of whom are as feminine and attractive in looks and demeanor as one could wish; and, if it correctly portrays the lady practitioners of Baltimore, they must be immigrants, for the young women of that city are noted for their loveliness.

#### REFORM IN THE CORONER'S SYSTEM OF NEW YORK CITY.

THE Academy of Medicine having submitted its amended bill to its members for careful consideration, it seems justifiable, says an esteemed correspondent, to come forward with any objections that might be made against the measure. The weak and objectionable point of the bill seems to him to be that it divides the responsibility in cases of sudden or otherwise suspicious death among three different and independent bodies, the board of health, the coroner, and the district attorney, one more than at present. The distance of each of their offices from those of the others would alone, he says, necessarily involve considerable delay in the transaction of business. What the board of health has to do with the matter it is difficult for him to understand. It clearly belongs to the department of justice—that is, to the district attorney—to see that any criminal action is detected and punished. Would it not be much simpler and more

practical, our correspondent asks, to attach the bureau of inquest which the bill would create to the district attorney's office?

#### ACUTE ULCERATIVE ENDOCARDITIS DUE TO THE BACILLUS DIPHTHERIE.

In the *Johns Hopkins Hospital Bulletin* for April Dr. W. T. Howard, Jr., reports the case of a Russian Pole, aged forty-four years, who was sick, with anomalous symptoms, for twenty-four days. At the necropsy the heart presented the lesions of ulcerative endocarditis, and a microscopical and bacteriological examination of a thrombotic mass on the mitral valve showed the presence of a bacillus with all the morphological characters of the *Bacillus diphtherie*. The bacillus was studied by Dr. Welch, by Dr. Abbott, of Philadelphia, and by the author, and none of them was able to distinguish any difference between it and the Klebs-Löffler bacillus. The organism was also found in the lungs, liver, spleen, and kidneys. This seems to be the first recorded observation of ulcerative endocarditis caused by this organism.

#### MEDICAL COLLEGE LIBRARIES.

THE proceedings of the first joint meeting of eight scientific societies of New York, under the title of the Scientific Alliance of New York, have just been published. The contents embrace a number of addresses delivered on the occasion. In one of them we find it stated that, with the exception of the Woman's Medical College of the New York Infirmary, the medical colleges of the city had all reported that they had no libraries. What, then, has become of the library that for so many years slumbered under the seats in the old amphitheatre of the College of Physicians and Surgeons before its migration from Twenty-third Street? As regards Brooklyn, the Hoagland Laboratory has, according to the pamphlet, a collection of fair size and rich in foreign serials on bacteriology, pathology, histology, physiology, and experimental therapeutics.

#### ANTISEPTIC IRRIGATION OF THE PARTURIENT CANAL.

At a recent meeting of the Philadelphia County Medical Society a paper was read advocating antiseptic irrigations before and after labor. In the discussion Dr. Charles P. Noble said that it was a well-known fact that the skin could not be disinfected with certainty, no matter what efforts were made. As to the vaginal mucous membrane, it was covered with mucus, and water would slip over it as over a duck's back. In the absence of experimental proof that the vaginal secretions were made sterile by the use of the douche he should doubt that such a result was accomplished. There was no doubt, however, that if there was a collection of foul discharge in the vagina the douche would wash it out, and in so far its use was excellent.

#### THE IODINE TREATMENT OF GOÎTRE.

Dr. E. NAZARIES (*Bulletin de la Société de pharmacie de Bordeaux*, February, 1893; *American Journal of Pharmacy*, May, 1893) remarks that, while iodine has long been used in the treatment of goître, he has met with unqualified success by a particular method of its use. He dissolves from seventy-five to ninety grains of potassium iodide and from twenty to thirty drops of tincture of iodine in about five ounces of distilled water. A spoonful [whether teaspoonful or tablespoonful, not stated] of this solution is diluted with a pint of water, and this amount taken daily, during and after meals. The author insists on the continued internal use of the drug.

## DE-EMETINIZED IPEACAC IN DYSENTERY.

In the *Indian Medical Gazette* for April Surgeon-Lieutenant-Colonel Crombie, of the European General Hospital, Calcutta, records his experience in the treatment of dysentery with ipecac, especially in its de-emetinized form, the *ipecacuanha sine emetica* made by Merck, of Darmstadt. This preparation had caused vomiting in a considerable number of cases, but the vomiting was not so distressing as that occasioned by ordinary ipecac, and was not a bar to its administration. He thinks, however, that neither form of ipecac has any special advantage over bismuth and Dover's powder in the treatment of dysentery, but of its two forms he prefers the de-emetinized.

## SALOL IN THE TREATMENT OF DIABETES.

NICOLAÏER (*Therap. Monatsh.*, March, 1893; *Rec. gen. de clinique et de thérapeutique*, April 26, 1893) recommends thirty-grain doses of salol, three times a day, as a palliative in diabetes mellitus when it is impracticable to enforce an antidiabetic diet. In the course of a week, in favorable cases, the amount of urine passed becomes normal, also the proportion of urea, and the sugar and acetone disappear completely. In severe cases the action of the drug is less decided, but is still perceptible. The symptoms recur when its use is discontinued. Sometimes it causes pain in the stomach, tinnitus aurium, and vertigo, and in one instance the author observed slight albuminuria.

## PROFESSOR KOCH'S ALLEGED DIVORCE.

A PRESS dispatch from Berlin gives the information that Professor Koch's wife has obtained a divorce from him, with an allowance of alimony to the amount of one fourth of his income. The dispatch further announces that Professor Koch is about to marry a young actress. The various statements above set forth may be true, and in the case of a man so widely known to the general public the mere announcement of the divorce is legitimate matter for the newspapers, but we doubt the propriety of the statement about Koch's intentions as to another marriage.

## THE LATE DR. JAMES R. LEAMING.

WE are glad to see that Dr. J. Leonard Corning's memorial address on the occasion of Dr. Leaming's death, delivered before the New York Academy of Medicine last February, has been published in pamphlet form. The title-page is faced by an excellent portrait of Dr. Leaming. The address itself is full of fine feeling expressed in very graceful terms.

## QUARANTINE IN THE EAST.

THE French, according to the *Union médicale*, feel, in view of the fact that representatives of Turkey, Asia Minor, and Persia were not participants in the late sanitary conference in Dresden, that a special conference should be convened in Paris for the purpose of regulating quarantine measures in the Orient.

## ITEMS, ETC.

**A Cancer Hospital for Vienna.**—The *Fortschritte der Medizin* states that Baron Albert Rothschild has given the sum of 500,000 Gulden to found a cancer hospital in Vienna.

**Changes of Address.**—Dr. Alfred K. Hill, to No. 659 Fifth Avenue; Dr. J. A. Jenkins, to No. 271 Jefferson Avenue, Brooklyn; Dr. S. S. Jones, to No. 20 East Sixty-third Street; Dr. Charles E. Nammack, to No. 29 East Twenty-fourth Street.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 16, 1893:

DISEASES.	Week ending May 9.		Week ending May 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	10	8	21	5
Typhoid fever.....	14	3	9	6
Scarlet fever.....	168	23	206	18
Cerebro-spinal meningitis...	15	14	23	17
Measles.....	180	7	187	5
Diphtheria.....	123	34	122	29
Small-pox.....	14	1	8	5

**The Death of Dr. Kundrat, of Vienna,** court councillor and professor of pathological anatomy, is reported in the *Fortschritte der Medizin* to have occurred on the 25th of April, as the result of apoplexy.

**The Death of Professor Hartmann, of Berlin.**—The *Wiener klinische Wochenschrift* for April 27th announces the death of Dr. Hartmann, professor of anatomy and first professor of the Anatomical Institute.

**The Death of Dr. Wegscheider, of Berlin,** is announced in the *Fortschritte der Medizin* for May 1st. He was in his seventy-fourth year.

**Naval Intelligence.**—Official List of Changes in the Medical Corps of the United States Navy for the week ending May 13, 1893:

BROWNE, J. MILLS, Surgeon General. Detached from duty as Chief of the Bureau of Medicine and Surgery, May 10th, and placed on the retired list.

TRYON, J. RUFFS, Medical Inspector. Detached from the U. S. Steamer Chicago, and appointed Surgeon General of the Navy and Chief of the Bureau of Medicine and Surgery.

HOEHLING, A. A., Medical Inspector, BRIGHT, G. A., Surgeon, and ROTHGANGER, GEORGE, Assistant Surgeon. Ordered to examination preliminary to promotion.

MARTIN, WILLIAM, Surgeon. Ordered to duty under the Supervising Surgeon General of the Marine-Hospital Service.

**Marine-Hospital Service.**—Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending May 6, 1893:

BAILHACHE, P. H., Surgeon. To report to Superintendent of Immigration for temporary duty. April 24, 1893.

PURTANCE, GEORGE, Surgeon. Detailed as chairman of Board of Examiners. May 6, 1893.

GASSAWAY, J. M., Surgeon. Granted leave of absence for two days. April 19, 1893. Detailed as member of Board of Examiners. May 6, 1893.

STONER, G. W., Surgeon. Detailed to represent service at International Congress of Charities, etc., Chicago, Ill. May 3, 1893.

IRWIN, FAIRFAX, Surgeon. To proceed to Naples, Italy, for temporary duty. April 17, 1893.

CARTER, H. R., Surgeon. Detailed as recorder of Board of Examiners. May 6, 1893.

WHEELER, W. A., Surgeon. To proceed to Europe as inspector. April 17, 1893.

BANKS, C. E., Passed Assistant Surgeon. To proceed to Grosse Isle Quarantine Station, Canada, for duty.

CARRINGTON, P. M., Passed Assistant Surgeon. To proceed to Hamburg, Germany, for duty. April 17, 1893. To proceed to Marseilles, France, for temporary duty. April 28, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. To inspect Fisherman's Island, Virginia. May 6, 1893.

STIMSON, W. G., Assistant Surgeon. To proceed to Quebec, Canada, for duty. April 29, 1893.

STEWART, W. J. S., Assistant Surgeon. To report at Washington, D. C., for duty. April 22, 1893.

BRANHAM, J. W., Assistant Surgeon. To proceed to New York for duty. April 21, 1893.

SPRAQUE, E. K., Assistant Surgeon. To proceed to Charleston, S. C., for duty. April 21, 1893.



PROCHAZKA, EMIL, Assistant Surgeon. To proceed to Ellis Island, New York, for duty. April 21, 1893.

#### Appointments.

BRANHEIM, JOHN W., of Virginia. Commissioned as Assistant Surgeon.

April 19, 1893.

SPRAGUE, EZRA K., of New York. Commissioned as Assistant Surgeon.

April 19, 1893.

PROCHAZKA, EMIL, of Wisconsin. Commissioned as Assistant Surgeon.

April 19, 1893.

#### Promotions.

PERRY, J. C., Assistant Surgeon. Commissioned as Passed Assistant Surgeon. April 19, 1893.

SMITH, A. C., Assistant Surgeon. Commissioned as Passed Assistant Surgeon. April 19, 1893.

#### Society Meetings for the Coming Week:

MONDAY, May 23d: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, May 24d: American Laryngological Association (New York—first day); New York State Medical Association, Fifth District Branch (Brooklyn); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society; New York Otological Society (private); Buffalo Obstetrical Society.

WEDNESDAY, May 24th: American Laryngological Association (second day); American Pediatric Society (West Point—first day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

THURSDAY, May 25th: American Laryngological Association (third day); American Pediatric Society (second day); New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, May 26th: American Pediatric Society (third day); Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, May 27th: New York Medical and Surgical Society (private).

#### Answers to Correspondents:

No. 405.—We have no positive information concerning the Cincinnati institution, but you can learn of its standing in the publications of the Illinois State Board of Health. The other institution mentioned is bogus.

No. 406.—The book is published in Vienna and Leipsic, by Max Merlin. It may be ordered through any American importer of books.

## Obituaries.

CHARLES CARROLL LEE, M. D., LL. D.

DR. LEE died on Wednesday, the 10th inst., after a brief illness, at the age of fifty-four, therefore in the height of his career. He was a native of Philadelphia, had spent the early part of his life in Maryland, obtained his medical degree from the University of Pennsylvania in 1859, served on the medical staff of the army during the late civil war, and had lived and practiced in New York since 1868. He was associated in practice with the late Professor George T. Elliot up to the time of Dr. Elliot's death. At the time of Dr. Lee's death he was professor of gynecology in the New York Post-graduate Medical School; consulting surgeon to the Charity Hospital, the Wom-

an's Hospital, and St. Elizabeth's Hospital; physician to the New York Foundling Asylum; and a member of the American Gynecological Society, of the New York Academy of Medicine, of the Medical Society of the County of New York (of which he was president), of the New York Physicians' Mutual Aid Association, of the New York Obstetrical Society, and of the New York Pathological Society.

Dr. Lee was a man of excellent professional attainments, eminent as a practitioner, clear and forcible in the exposition of his views in medicine, upright as a citizen, and amiable in his personal relations. His death is a great loss to the medical profession and to the community.

## Letters to the Editor.

### THE CONTROL OF SEX IN GENERATION.

SPRINGFIELD, MASS., May 9, 1893.

To the Editor of the *New York Medical Journal*:

SIR: The letter of Mr. Samuel H. Terry in your issue of April 22d, commenting on my paper which was published in your issue of July 2, 1892, seems to call for some reply. Mr. Terry makes some very careless and erroneous statements, charging me with both sins of omission and commission of which I am not guilty. I shall endeavor to notice his complaints in their order as briefly as possible, but, from the fact that he has made a reply containing as many words as my original article, my reply must be more lengthy than I could have wished. The first complaint is that I call his book "Terry's little book." When editors are sued for libel they usually plead, first, want of malice, and secondly, truthfulness of statement. I may enter the same plea, for nothing was further from my intention than to disparage either the author or the book. I would remind him in this connection that little books are frequently pregnant with information and, indeed, brilliant in style and fairly glistening with ideas, both original and valuable; whereas large ones are often masses of padding with scarcely a single witty saying or original observation. Regarding the size, the saying was the literal truth, for the copy in my possession is less than an octavo in size, containing 145 pages of very large type, well leaded, and sells for one dollar. Surely, as books go, this makes a very small one indeed; nothing like Quain's *Dictionary* or any of the standard works on the practice of medicine. With regard to the charge that I use the title of his book for that of my article, I may say in the first place, and in extenuation of my offense, if it may properly be called one, that after writing the paper it was put away in my desk without any title, and when it was taken to be published, several titles were tried. The one adopted was found to be the best for indexing, conveying, as it did, the best idea of the subject matter of the paper. In the mean time, Mr. Terry's book had not been handled for some months, and its *exact* title forgotten, so that I did not know I was using exactly the same title. It may be said that I ought to have assured myself as to the title of his book. Well, I did not feel any necessity for so doing; I felt that I had made ample acknowledgment for any use that I might make of it. There are two ways of making such acknowledgments: one is by footnotes indicating just what matter is taken, and another and more conspicuous way is to make it in the body of the book or paper, and this seems to be the more desirable where one quotes frequently and extensively. Had Mr. Terry read my paper as carefully as he says I ought to have read his book, he would have been saved from making a *false charge against me*. After review-

ing the opinions of ancient and modern times, I say: "The subject has recently received a new impetus from the experiments and original ideas of Mr. D. D. Fiquett and Mr. Thomas B. Armistage, and the little book of Samuel Hough Terry and the translation from the French of Dr. H. M. Gourrier's valuable little book." To these books, especially to Gourrier's, am I indebted for much valuable information used in the preparation of this paper. This explains why I gave Mr. Terry no credit in "footnotes," though such footnotes abound regarding other books. The other books were not so extensively quoted from, and were not given credit in the body of the paper. Verily, Brother Terry, rather first take the beam out of thine own eye, etc. I think I have now effectively disposed of the title business, failure to give credit, and unfairness. I am next accused of ignoring the details of his book—"While he aspires to erect a structure of his own on its foundations." "Then he claims not only this change, but the *dominant idea as his theory*." Here we have two complaints, but it is convenient to treat them together. With regard to my ignoring the details of his book, I would say the statement is absurd on its face, for in another place I am accused of making *extensive quotations from it*. In fact, "the numerous passages he quotes from my book show this." Again he says: "As the same ideas, often in the same words, are found throughout my book." These statements alone are sufficient to prove that I did not ignore the details of his book. Why, my friend, I have quoted from your book matter enough to make about one fourth of my paper, and more than from any other one source. And now, forsooth, I ignored the details! Why, the paper is made up largely of these very details. So far as claiming the dominant idea as my idea, *I nowhere make any such claim*. Have I not said, referring to my hypothesis: "It consists in adopting Terry's in its entirety, minus the term 'highest degree of sexual excitement'?" How then can I claim the dominant idea when I have adopted yours in its entirety? Verily, you are setting up a man of straw for the purpose of knocking him down. My first purpose was to call his attention to what I conceived to be an error of definition, and end there, but the more I reflected, the more I studied individual cases, the more I was satisfied that the excitement theory did not fill the requirements of the case. And, *falsus in uno, falsus in omnibus*. I could not for this reason subscribe to it, and, since this was the essential point of the theory, its rejection and the substitution of a new definition made the hypothesis really a new one. My object in so calling it in the paper was not for any notoriety I might obtain, but as a logical consequence. The author next gives us an exposition of the meaning of the words "excitement" and "erethism," and kindly informs us that the error which led to his [my] objection to my term, lies in his misconception of the meaning of the word "excitement." When all your readers attended the grammar school, I dare say, they knew that excitement was a noun and was the name of the cause or motive that excited, the essence of the verb excited, and that excitability was the ability to be excited, etc. But, begging his pardon, I still insist that, *so far as I am concerned*, there is no misconception, and that, after reading this, his latest definition, I am still of the opinion that it is a corner-stone *fatal to his whole edifice*, and I think the great majority of your readers will agree with me. I see no analogy between excitement and vigor, only that a vigorous person may be able to sustain a condition of excitement longer, though the grade of excitement need not necessarily be of a higher order or even as high. He says in this connection: "Dr. Keefe admits that in my book the element of sexual vigor is embraced in sexual excitement." True, but not as part of your definition; not as a necessary part of your theory, but as a logical deduc-

tion from your reasoning. If you intended them as synonymous, why so much fault-finding? Why not embrace vigor as part of your definition and thank Dr. Keefe for having called your attention to an important oversight. After discoursing on erethism, Mr. T. says: "One might with equal propriety maintain that materials most inflammable—that is, most readily set on fire—produce the greatest heat." Is not this the fact, Mr. T.? Do they not in a given time produce the greatest number of heat units? For example, a pound of coal will produce perhaps a heat of greater intensity than a like quantity of kerosene, but *not in the same time*, and if the fire of the kerosene be applied to heat anything, it will heat it to as great intensity as the coal. I instance these for comparison, not insisting on the actual correctness of the quantities. This same reasoning applies to other things of the same class. Mr. Terry again says: "The highest degree of sexual vigor, which Dr. Keefe prefers, is rather the capacity to ordinarily take on the highest degree of excitement." If such is the case, there is no controversy between us, but here he makes a serious error. As I before stated, there is no necessary relation between them, only that the vigorous may be able to maintain the condition for a greater length of time. He continues: "In introducing what he calls his theory of the reason why a parent impresses his progeny with the sex opposite to his own, he remarks, Mr. Terry has offered no adequate explanation of this; he only gives experiments apparently proving the fact, but not the reason for it." Here follow references to parts of his book where we are supposed to find the information desired. I have *re read these parts*, and particularly chapter xi, and am able to reiterate the statement with emphasis. The object of the friction of the parts is not, as Mr. T. thinks, to generate electricity; but to increase the active circulation—arterial blood—to furnish a pabulum to the glands, to enable them to secrete a lubricating fluid on the one hand, and to perfect and eject the spermatic fluid on the other. The friction acts here just as it will in a wasting and paralyzed muscle. It increases the nutrition. Our treatment of impotence is based on this very fact. We try to get rid of the passive and increase the active circulation. Again he says: "Dr. Keefe's hypothesis for this presents no physiological law that will apply to the lower orders." Being substantially the same as Mr. Terry's, I fail to know why the physiological law that applies to the one will not apply with equal force to the other. After complimenting the writer for his perceptive qualities, Mr. Terry continues: "But his capacity for drawing logical conclusions is less acute, as shown by his remarks on Dr. Cook's theory." He is more acute than you would have him, my friend, for he is not too obtuse to notice that you have *transposed his figures*. Instead of proving the falsity of Cook's theory, as you say they do, they really, as given by you, do exactly the reverse, and prove the correctness of it. I have often heard it said that figures could be made to prove anything, but it remained for Mr. Terry to demonstrate its literal truth. He is puzzled to know how the writer satisfied himself that all those children born between 12 m. and 12 p. m. were begotten between midnight and morning. I reply, firstly, that 12 m. to 12 p. m. is not between midnight and morning. Secondly, that it requires not such a great "stretch of occult intelligence" as he seems to think. I satisfied myself in the following manner: I concede at the outset that insemination and conception are not synchronous as to time; still, in a large number of cases, the majority would strike an average in which the time would be pretty constant; otherwise, how could we predict with any degree of confidence the date of an expected delivery? From the days of Aristotle it has been the custom to count ten lunar months of twenty-eight days each as the period of uterogestation. It is a notorious fact that, nine times

out of ten, coitus occurs in the hours of darkness and that, almost in an equal ratio, delivery takes place in the same hours. This fact alone would be a strong presumption in favor of delivery being synchronous as to time of day with coitus. Acting on this assumption is how I satisfied myself that the infants referred to were begotten in the night. Of course there are many elements of uncertainty in this, and the conclusion is not beyond cavil, but the same may be said with regard to many points of the general subject.

In reference to the statements that many ideas, often in the same words, are found in his book, I have only to say that my paper, be it remembered, purported to be a review of the subject with observations on 311 cases in the human family. It can not be gainsaid that, in reviewing a somewhat limited literature, it would be strange if some of the same ideas, and often in the same language, were not contained in the paper as in Mr. T.'s book, especially after it had been acknowledged that it was one of the books on which the paper was based. Again, I am asked to account for exceptional cases, as why the children of plural births were not all of the same sex? I have not time, nor is a letter the proper place, to go into that subject, and I fear I have wearied your patience already; but I may say that I gave many reasons in my paper, and Mr. Terry gave many reasons in his book. All he has accomplished I have aimed to give him credit for, and I thank him for producing so interesting a "little book." It is well written, very readable, and wholly good. In conclusion, all I ask of him is to read the productions of others with more care and a little charity before he launches into criticism.

D. E. KEEFE, M. D.

#### THE NEW YORK STATE EXAMINING BOARD.

NEW YORK, May 13, 1893.

To the Editor of the New York Medical Journal:

SIR: In Dr. Starr's letter, which appeared in the *Journal* of this date, criticising the *Syllabus on Diseases of the Nervous System* of the State board of medical examiners, there is an error of statement as to the origin of this board that I beg you will allow me to correct. It is not correct to say that "the Regents of the University of the State of New York agreed to demand from every student of medicine about to practice in this State some evidences of his fitness for his work, and therefore established a State examination." It was not the regents at all, but the Legislature that established a board of State examiners. The regents are simply carrying out a law the details of whose execution were intrusted to them. I am not competent to discuss Dr. Starr's criticisms upon the medical syllabus adopted by the examiners, but, whether it be a scientific one or not, I do not think it follows, as Dr. Starr intimates, that a man must be a teacher of neurology in order to draw up a proper form of examination in this department. The State medical societies are limited to some extent by the law as to the examiners whose names they may send to the regents, but they did send, when the board was first created, the name of one of the authors to whom Dr. Starr alludes, among those of other teachers. A strong influence was brought to bear upon the regents, and, as I think, unfortunately, which induced them to reject all names of teachers. I agree thus far with Dr. Starr, that teachers ought not to be debarred from becoming examiners. Yet I believe it easy to secure examiners competent to frame proper questions, even if they are not teachers, although, of course, it will be more difficult. Yet the present board is generally conceded to be an entirely competent one. He must be himself, to some extent, unknown who does not know, at least by reputation, as Dr. Starr says he does not, such men as William C. Wey, William S. Ely, and George R. Fowler, who, with four

other thoroughly educated physicians, well known throughout our State at least, constitute the board of examiners in affiliation with the Medical Society of the State of New York.

D. B. ST. JOHN ROOSA, M. D.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

Meeting of May 2, 1893.

The President, Dr. M. ALLEN STARR, in the Chair.

**Ataxic Paraplegia.**—Dr. L. STIEGLITZ presented a man, aged forty years, who had been under observation for a year past. He had first complained of weakness and paresthesia in the lower limbs. The knee-jerks were greatly increased; there was pronounced ankle clonus, with slight ataxia, slight Romberg symptom, and some paresis on the right side of the face. His condition remained about the same for a few months. Last December the ataxia of the lower limbs became more pronounced and the upper limbs were also affected; the sensory disturbances had increased. All these symptoms had steadily progressed. There was now also slight disturbance of the functions of the bladder. The thermal sense had been lost. The speaker presented the case as one of sclerosis of the lateral and posterior tracts (ataxic paraplegia) with involvement of the right facial nerve.

**A New Induction Coil for Currents of Quantity and Tension** was shown by Dr. A. D. ROCKWELL. (See page 526.)

**Some Considerations concerning Genito-urinary Neurology.**—Dr. THOMAS H. BURCHARD read a paper on this subject. He stated that the intimate connection, anatomical and physiological, that existed between the general nervous system on the one hand and the genito-urinary system on the other found a counterpart in the reciprocal manifestations of these systems under conditions of disease. Diseases of the brain, the spinal cord, or the sympathetic produced corresponding disturbances in the genito-urinary system, and, conversely, diseased conditions of the uterus, ovaries, bladder, prostate, and external genitals were not infrequently the cause of serious nervous disease. The extent to which the brain was susceptible to genital irritation was, of course, largely a matter of conjecture. That inordinate sexual indulgence, particularly during the period of adolescence, might seriously weaken the system by sapping its vitality, would doubtless be admitted. Even here, however, and especially among the insane, the sexual manifestations were essentially symptomatic, and must not be regarded as causative. The important point was that long-continued irritation of the genito-urinary system, and quite independent of sexual indulgence, was capable by itself of producing insidious and profound nervous disease.

Short histories of three cases were then read as illustrating the proposition that it was possible for irritation of the genito-urinary system in either sex to produce the highest forms of reflex nervous and cerebral irritation. In many diseased conditions of the nervous system a painstaking and thorough investigation would carry the diligent neurologist into an exhaustive examination of the pelvic viscera and the genital apparatus.

Dr. ROCKWELL said it was always interesting to consider the question as to whether any particular form of neurosis was peripheral or central in its origin. Many of these cases, no doubt, are out of the domain of the neurologist. The cases of



central origin, however, gave symptoms quite different from those that were functional. The surgeon naturally looked for some source of peripheral irritation, and he might possibly find it in hemorrhoids, in varicocele, in an elongated prepuce, etc. But if these morbid conditions were not the cause of the nervous phenomena, it was not well to subject the patient to a surgical operation, because the nervous conditions were often made worse thereby. In cases of central origin the character of the symptoms was quite distinct; they were mental, in a great measure; the patient's sufferings were more than physical.

Dr. JOSEPH COLLINS fully agreed with the statements made by Dr. Burchard regarding cases of reflex neuroses. The trouble was that the matter had got into bad odor on account of the number of operations that had been performed in just such cases with no good results. A case exactly similar to the first one recited by Dr. Burchard had come under his observation, and the removal of an elongated prepuce and a varicocele had permanently relieved the patient from epileptoid seizures. While the pertinency of such cases could not be doubted, one must not allow himself to be carried away by them. Where one cure had been reported after such an operation, a dozen cases could be cited where no beneficial results had been obtained.

Dr. E. D. FISHER said he did not think that genital irritation due to masturbation alone could cause mental disease unless there existed a previous degenerative type of brain. Masturbation was common among the insane in all forms of degeneration where dementia was present. Everybody thought that genito-urinary irritation was capable of producing functional nervous disturbances. As regarded operations, if an organ was found diseased and the symptoms pointed to that organ as the cause of the irritation, we must remove it; but to remove a healthy ovary for epilepsy or hystero-epilepsy was not good practice. In the cases cited by Dr. Burchard operative procedures had certainly been clearly indicated.

Dr. L. C. GRAY said that in men disorders of the urethra were prone to lead to a prolonged form of hypochondriasis which it was difficult to relieve. In women the genital organs played a larger rôle. About seven or eight cases had come under his observation, in women who had been operated on while insane, and who had either made relatively good recoveries or been improved. All these had belonged to the same type: they were of the class of hallucinatory insanity. In three or four cases of melancholia there had been no improvement at all.

We must also consider the converse side of this question. It was a well-known fact that operations on the genital or urinary organs had produced insanity. Dr. Thomas, some six years ago, had reported a series of such cases, and a *résumé* of the literature on the subject had been given by Dr. Mary Putnam Jacobi. There was a singular reluctance on the part of many, the speaker said, to admit that the brain was in the skull and could do business on its own account; every specialist wanted to transfer it to his chosen field.

The PRESIDENT said that the typical cases of nervous and mental disease were never reflex in their origin. Certain cases were of reflex origin, but their proportion was small. Of four hundred and seventy-two cases of epilepsy that had come under his observation, only eleven had been of reflex origin. One of the latter cases was that of a boy, who began to have epileptoid convulsions at the age of three years, and had sometimes as many as sixty attacks (of *petit mal*) in a day. On examination, it had been found that the boy had a very tender penis, the prepuce of which could not be retracted. He was circumcised, the attacks ceased, and at the end of four years he was pronounced cured. That operation had been performed in 1883. Nine months ago the boy was brought to the clinic by his mother, who stated that the epileptoid convulsions had come on again about six

months before. No local source of irritation could be found, and this suggested that those cases which we considered merely reflex might after all be constitutional.

In neurasthenies of the genito-urinary type the seat of the irritation was often situated in the deep urethra, about the prostate, and these could usually be promptly cured by local applications of silver nitrate. A number of cases, however, had come under his observation which had failed to yield to this treatment, and in four of them one or more small ulcers had been found on the anterior wall of the rectum, adjacent to the prostatic gland. The irritation had rapidly disappeared after the ulcers had been excised or treated with pure nitric acid. This suggested the importance of making a careful rectal examination in these cases.

Dr. BURCHARD said he had yet to see any disease of the genito-urinary organs that of itself was capable of giving rise to distinct and profound nervous disease unless the patient was predisposed either by heredity or by some acquired condition. In the three cases presented by him the patients had all been more or less broken down and hysterical.

**The Self-regulation of the Beat of the Heart.**—Dr. S. J. MELTZER read a paper on this subject. (See page 513.)

After some remarks by Dr. B. SACHS and Dr. COLLINS, the society passed a vote of thanks to Dr. Meltzer for his paper.

A resolution was adopted respectfully requesting Governor Flower to grant his approval of the bill passed by the Legislature providing for the establishment of an epileptic colony in Livingston County.

## Book Notices.

*A System of Genito-urinary Diseases, Syphilology, and Dermatology.* By Various Authors. Edited by PRINCE A. MORROW, A. M., M. D., Clinical Professor of Genito-urinary Diseases, formerly Lecturer on Dermatology in the University of the City of New York, etc. With Illustrations. In Three Volumes. Vol. I. Genito-urinary Diseases. New York: D. Appleton & Co., 1893. Pp. xxvii+1074.

THE tendency of modern specialism in medicine is toward the association of collateral branches. Especially is this the case in the smaller cities, where there is not sufficient practice in one special line to keep an active practitioner busy. As a consequence, those who are engaged in post-graduate teaching come constantly in contact with men desiring advice on points in regard to which two or three particular lines of practice will combine most harmoniously. Whatever answer may be given to such questions with reference to the other branches of medicine, it is practically settled, in this country at least, that genito-urinary diseases, syphilology, and dermatology form one of the most practical and profitable combinations. Whoever may have originated the idea of a systematic treatise upon these combined subjects, to Dr. Morrow will be given the credit of having brought together a notable list of contributors and of having made a most excellent division of the subjects. The time was ripe for an exhaustive review of genito-urinary diseases, and in the volume before us we have it prepared by men selected with special reference to their experience and knowledge. One has but to read the list of collaborators to feel satisfied that the work is one of more than ordinary merit. The editor has carefully reviewed their work and eliminated as far as possible any overlapping of subjects, and yet this volume contains over a thousand pages. Whatever is known upon

genito-urinary diseases, with few exceptions, seems to be found within its covers.

It would be a pleasure to review almost every article in the book did space permit, and no invidious distinction is intended when we call attention to a few which seem to us to mark a particular advance in the literature of the subject. Among the first of these is the article on endoscopy, by Dr. Herman Klotz. Heretofore we have had no adequate treatise upon this subject in the English language, and the student has been compelled to depend upon Grönfeld's work, either in German or in translations. Thanks to Dr. Klotz, we now have in our mother tongue a complete and concise manual upon the ocular examination and local treatment of the urethra, and any one interested in the subject will find his article replete with facts and practical suggestions. The Diagnostic Significance of Pathological Modifications of the Urine, by Dr. Eugene Fuller, is a most timely and excellent contribution from an accurate observer. Dr. Fuller, in his association with Dr. Keyes, has had a vigorous training and a large experience, which make him a practical thinker, and this characteristic is well brought out in the pages before us.

The article on Stone in the Bladder, Prostate, Urethra, and Ureters, by Dr. A. T. Cabot, is one of the most complete and interesting in the book. The latest and most practical views on this subject are here set forth in a concise and attractive manner, while new and ingenious devices are suggested with an almost unbecoming modesty.

Dr. Morrow's own contribution, on The Functional Disorders of the Male Sexual Organs, is well worthy of particular notice, as indeed are most of the articles in the volume.

The work is an advance upon anything heretofore published upon these subjects, and no practitioner in these special lines can afford to be without it.

*A Practical Guide for Beginners to the Dissection of the Human Body.* By IRVING S. HAYNES, Ph. B., M. D., Demonstrator of Anatomy in the Medical Department of the University of the City of New York. New York: E. B. Treat, 1893. Pp. 250. [Price, \$1.]

This little work is intended for use at the dissecting table, directing the student how to pursue his work and what to observe during dissection, thus supplementing the explanations of the anatomical instructor. It is based on the author's practical experience in the latter capacity, and will undoubtedly prove a very useful work to the student.

*Lehrbuch der physiologischen Chemie mit Berücksichtigung der pathologischen Verhältnisse.* Für Studierende und Aerzte. Von RICHARD NEUMEISTER, Dr. med. et phil., Privatdocent an der Universität Jena. Erster Theil. Die Ernährung. Jena: Gustav Fischer, 1893. Pp. xii-337.

The advent of another work on physiological chemistry so soon after the appearance of those by Hammarsten and Halliburton is some evidence of the activity prevailing among the workers in a field that is of much importance to the advance of medicine.

This is the first part of the projected work of two volumes, and pertains to the subject of nutrition. As was to be expected from the character of the author's previous work, the book is an excellent presentation of the subject. It is not a mere description of proximate chemical principles, with methods of preparation and reactions, but is a systematic story of the chemistry of the nutritive principles, of digestion, and of nutrition. The relations of the facts presented to pathology are sufficiently dwelt upon, and frequent reference is made to analo-

gous phenomena in lower forms of animals and in vegetable organisms. A feature of great value to the advanced student is the very copious references to authorities given in the form of foot-notes.

The excellence of the volume leads one to express the hope that the second part, relating to the tissues and the fluids of the body, will not be long delayed.

*Épilepsie.* Par CH. FÉRÉ, médecin de Bicêtre. Encyclopédie scientifique des aide-mémoires, publiée sous la direction de M. Léauté, membre de l'Institut. Paris: G. Masson, 1892. Pp. 203.

This is a clear and masterly exposition of a disease that can nowhere be studied to better advantage than at the hospitals where our author has officiated, the Salpêtrière and the Bicêtre. The air of these refuges is fairly impregnated with epilepsy, the sufferers from which are either domiciled within their walls or frequent attendants of their dispensaries. Every opportunity for studying this neurosis in all its phases is therefore offered to the medical practitioner, and he inevitably becomes well versed in the epileptic's possibilities and inevitabilities. Féré is, as is well known, not only a most conscientious student, but a man of long experience, as could indeed be deduced from the great ease with which he marshals his facts. The present treatise is an excellent addition to his already long list of works.

*Diseases of the Nasal Organs and Naso-pharynx.* By WHITFIELD WARD, A. M., M. D., Ten Years Surgeon to the Metropolitan Throat Hospital, late Clinical Assistant to the London Throat Hospital, Member of the New York County Medical Society, etc. New York and London: G. P. Putnam's Sons, 1891. Pp. 165.

THE author's aim has been to present a treatise on the diseases of the nose in which all matter of a simply historical value should be excluded, while all due attention should be given to the description of the diverse treatments and operations and of the requisite instruments. For the better comprehension of operations and instruments, the book is plentifully illustrated, so that after its perusal a clear picture can be formed of the needs and requirements of both patient and surgeon.

#### BOOKS, ETC., RECEIVED.

Napheys's Modern Therapeutics, Medical and Surgical, including the Diseases of Women and Children. A Compendium of Recent Formule and Therapeutical Directions from the Practice of Eminent Contemporary Physicians, American and Foreign. Ninth Edition, revised and enlarged. Volume II. General Surgery, Gynecology, and Obstetrics. By ALLEN J. SMITH, M.D., Professor of Pathology, University of Texas, Galveston, etc., and J. AUBREY DAVIS, M.D., Assistant Demonstrator of Obstetrics, University of Pennsylvania, etc. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xix-17 to 1112. [Price, \$6.]

A Handbook of Local Therapeutics. General Surgery, by RICHARD H. HART, M.D., Demonstrator of Osteology and Syndesmology, University of Pennsylvania; Diseases of the Skin, by ARTHUR VAN HARLINGEN, M.D., Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Diseases of the Ear and Air Passages, by HARRISON ALLEN, M.D., Consulting Physician to the Rush Hospital for Consumption; Diseases of the Eye, by GEORGE C. HARLAN, M.D., Surgeon to Wills Eye Hospital and to the Eye and Ear Department of the Pennsylvania Hospital. Edited by HARRISON ALLEN, M.D. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xxvii-17 to 505. [Price, \$4.]

Vertebrate Embryology: a Text-book for Students and Prac-

tioners. By A. Milnes Marshall, M. D., D. Sc., M. A., F. R. S., Professor in the Victoria University, etc. New York: G. P. Putnam's Sons. London: Smith, Elder, & Co., 1893. Pp. xxiii-640. [Price \$6.]

Malarial Fever in a New-born Infant. By Floyd M. Crandall, M. D., New York. [Reprinted from the *New York Polyclinic*.]

The Ability of a State to prevent an Epidemic of Cholera. By Benjamin Lee, M. D., Philadelphia. [Reprinted from the *Medical News*.]

Responsibility of the National and State Governments for the Protection of the Purity of the Water Supplies. By Benjamin Lee, M. D., Philadelphia. [Reprinted from the *Journal of the American Medical Association*.]

On the Necessity of Amputation of the Cervix Uteri in a Certain Class of Cases of Laceration. By J. W. Hyde, M. D., Brooklyn. [Reprinted from the *Brooklyn Medical Journal*.]

The Structures in the Mesosalpinx: their Normal and Pathological Anatomy. By J. W. Ballantyne, M. D., F. R. C. P. E., etc., and J. D. Williams, M. D., etc. Edinburgh: Oliver & Boyd, 1893. Pp. 7 to 51.

On the Relation of Eczema to Disturbances of the Nervous System. By L. Duncan Bulkley, A. M., M. D., New York. [Reprinted from the *Medical News*.]

The Internal Treatment of Lupus Erythematosus with Phosphorus. By L. Duncan Bulkley, A. M., M. D., New York. [Reprinted from the *American Journal of the Medical Sciences*.]

Clinical Study and Analysis of One Thousand Cases of Psoriasis. By L. Duncan Bulkley, A. M., M. D., New York. [Reprinted from the *Maryland Medical Journal*.]

Free Incision of Ostitis of Hip, and Closure without Drainage. By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Transactions of the Philadelphia County Medical Society*.]

Practical Details in the Preparation of Plaster-of-Paris Bandages. By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Philadelphia Polyclinic*.]

A Clinical Lecture on the Prevention of Idiopathic Rotary Lateral Curvature of the Spine. By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Annals of Gynecology and Pædiatry*.]

The Twentieth Regular Report of the Medical and Surgical Staff of St. Francis Hospital, Jersey City, N. J. For the Year 1892.

Annual Address before the State Board of Health of Pennsylvania. By Samuel G. Dixon, M. D.

Thirty-second Annual Report of the Cincinnati Hospital to the Mayor of Cincinnati, for the Fiscal Year ending December 31, 1892.

Fifteenth Annual Report of the State Board of Health of the State of Connecticut, for the Seven Months ending June 30, 1892, with the Registration Report for 1891 relating to Births, Marriages, Deaths, and Divorces.

Transactions of the American Pædiatric Society, Fourth Session. Held at Boston, Mass., May 2, 3, & 4, 1892. Edited by William Perry Watson, A. M., M. D., Recorder. Volume IV.

The Johns Hopkins Hospital Reports. Report in Pathology, III. Volume III. Nos. 4, 5, 6.

Thirty-fourth Annual Report, Buffalo General Hospital. For the Year 1892.

Die Berufskrankheiten der Porcellanarbeiter. Von Dr. Theodor Sommerfeld (Berlin). [Sonder-Abdruck aus der *Deutschen Vierteljahrsschrift für öffentliche Gesundheitspflege*.]

The Creation of God. By Dr. Jacob Hartmann, New York. New York: The Truth Seeker Company, 1893. Pp. viii-9 to 432.

On Some Fallacies inherent in the Parasitic Theories of the Etiology of Carcinoma. By James P. Warbasse, M. D., of Brooklyn. [Reprinted from the *Annals of Surgery*.]

How to operate for Hæmorrhoids. A Clinical Lecture on Diseases of the Rectum, delivered at the New York Post-graduate Hospital. By Charles B. Kelsey, M. D. [Reprinted from the *Therapeutic Gazette*.]

Report of a Hundred Cases of Ether Anæsthesia by Clover's Inhaler. By G. Gordon Campbell, B. Sc., M. D. [Reprinted from the *Montreal Medical Journal*.]

Certain Problems in Abdominal Surgery, based on One Hundred Cæliotomies done at the Kensington Hospital for Women. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Transactions of the Philadelphia County Medical Society*.]

Symphysiotomy versus its Substitutes; with the Report of a Case of Symphysiotomy. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Medical News*.]

Early Diagnosis and Operation in Cancer of the Uterus. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *American Gynecological Journal*.]

Case of True Pelvic Abscess. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Annals of Gynecology and Pædiatry*.]

Report of a Successful Elective Cæsarean Section. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Annals of Gynecology and Pædiatry*.]

Vaginal Hysterectomy for Cancer, with a Report of Four Cases. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Annals of Gynecology and Pædiatry*.]

The Cæsarean Section and its Substitutes. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *American Journal of Obstetrics*.]

Metatarsalgia (Morton's Painful Affection of the Foot), with an Account of Six Cases cured by Operation. By Thomas S. K. Morton, M. D., Philadelphia. [Reprinted from the *Transactions of the Philadelphia Academy of Surgery*.]

Morphologie esthétique. Division tétrapartite du squelette, théorie cardinale de l'organisme. Par Wallace Wood, M. D., de New York.

## Miscellany.

**Metatarsalgia.**—At a meeting of the Philadelphia Academy of Surgery held on March 6th Dr. Thomas S. K. Morton read a paper of which the following is the substance:

The affection that has come to be best known as "Morton's painful affection of the foot," or "Morton's toe," was first described and a method of certain cure presented by Dr. Thomas G. Morton, of Philadelphia, in 1876, under the title of A Peculiar Painful Affection of the Fourth Metatarso-phalangeal Articulation.\* In subsequent publications† he has confirmed his views relative to cause and treatment, and reported large numbers of cases.

The disease under consideration may be described as a painful affection of the plantar digital nerves, directly caused by pressure upon or pinching of them by certain portions of the metatarso-phalangeal articulations—especially the fourth.

The reason for the fourth toe being the almost invariable seat of origin of the train of painful and neurotic symptoms to be described is ascribed to anatomical causes by Morton in the following language:

\* *American Journal of the Medical Sciences*, January, 1876.

† *Surgery in the Pennsylvania Hospital*, 1880, p. 197. *Philadelphia Medical Times*, October 2, 1886.



"The occurrence of neuralgia may be understood by a reference to the anatomy of the parts. The metatarso-phalangeal joints of the first, second, and third toes are found on almost a direct line with each other, while the head of the fourth metatarsal is from one eighth to one fourth of an inch behind the head of the third, and the head of the fifth is from three eighths to half an inch behind the head of the fourth; the joint of the third, therefore, is slightly in advance of the joint of the fourth, and the joint of the fifth is considerably behind the joint of the fourth.

"The fifth metatarsal joint is so much posterior to the fourth that the base of the first phalanx of the little toe is brought on a line with the head and neck of the fourth metatarsal, the head of the fifth metatarsal being opposed to the neck of the fourth.

"On account of the character of the peculiar tarsal articulation, there is very slight lateral motion in the first three metatarsal bones. The fourth has greater mobility, the fifth still more than the fourth, and in this respect it resembles the fifth metacarpal. Lateral pressure brings the head of the fifth metatarsal and the phalanx of the little toe into direct contact with the *head and neck of the fourth metatarsal*, and to some extent the extremity of the fifth metatarsal rolls above and under the fourth metatarsal.

"The mechanism of the affection now becomes apparent when we consider the nerve supply of the parts. The branches of the external plantar nerve are fully distributed to the little toe and to the outer side of the fourth; there are also numerous branches of this nerve deeply lodged in between these toes, and they are liable not only to be unduly compressed, but pinched by a sudden twist of the anterior part of the foot. Any foot movement which may suddenly displace the toes, when confined in a shoe, may induce an attack of this neuralgia. In some cases no abnormality or other specific cause for the disease has been detected."

This explanation undoubtedly will account for the great majority of cases, and perhaps all could be ascribed to pinching of the nerves between the metacarpo-phalangeal articulation. Yet there have been reported a few cases where the transverse metatarsal ligament has appeared to be lax or ruptured, thus permitting the metatarsal heads to descend upon the nerves. Auguste Poullosson, of Lyons, in 1889,\* after reporting a typical case, says that "the cause of the affection is evidently a certain laxity of the transverse metatarsal ligament, which permits partial infraction of the arch formed by the heads of the five metatarsal bones, one of the middle ones, probably the third, becoming dislocated downward and compressing the nerves running along each side of it against the heads of the neighboring bones."

L. G. Guthrie,† in writing of metatarsal neuralgia, states his belief that "under the influence of prolonged standing or walking in tight boots, the ligaments of one or more joints, metatarso-phalangeal or phalangeal only, become strained, slight subluxation takes place, the nerves are stretched and pressed upon by the partially dislocated bones, and the characteristic pain is produced."

In reference to the supposed dislocations above mentioned Morton says:

"The dislocation referred to is not a true dislocation, but is simply a twist of the toe, and a violent spasmodic condition of the muscles of the toe incident to the intense pain, simulating a dislocation, which, when the toe is compressed laterally and in its rolling between the third and fifth suddenly, presses upon and pinches the underlying plantar-nerve branch."

Edward F. Grün,‡ himself a sufferer from the affection, believes that the pain results from descent of the tarsal arch, which is accompanied by lengthening of the foot and spreading to the outer side, so that "where the weight comes on the member the foot spreads inordinately; the foot is not constructed to allow for so much spreading, and a frightful cramping pain is the result, causing the patient to remove the boot without regard to place or circumstances—often the most inconvenient.

E. H. Bradford\* states that the results of treatment in these cases, as well as the symptoms and localization of the point of severest pain, make him agree with Morton in believing the affection to be originated by pinching of the metatarsal nerve, rather than to flattening of the tarsal arch, as suggested by Poullosson. In none of his thirteen cases was any degree of flat foot present.

In a large number of cases seen by me, in addition to those herein reported, it has not been possible to demonstrate any laxity of the metatarsal ligaments, and, while in a few the pain was referred to other of the metatarso-phalangeal joints than the fourth, yet upon careful manipulation it was always found that the pain was reflected from the fourth to the other joints. It must be conceded, of course, that laxity or rupture of the transverse ligament would predispose to injury of the nerves at the fourth joint by permitting greater motion of the overlapping bony points in that situation. However, while the exact etiology of the affection is of great scientific interest, clinically it is of small account, as excision of the fourth metatarso-phalangeal articulation, as originally proposed by Morton, or amputation of the fourth toe, including the corresponding metatarsal head, invariably has secured an absolute and permanent cure. No dissections of the diseased regions have yet been possible, nor have the nerves been in any case excised so that microscopical examination could be made. I have carefully examined a number of the joints that have been removed for the cure of the affection, and in no instance have been able to prove any anomaly or disease.

Metatarsalgia is, in its lesser degrees, a very common disease. Almost every one has suffered more or less at times from neuralgic twinges radiating from the joint in question. These mild cases occasionally develop into the more severe forms. In them occasional attacks of pain are often followed by periods of complete immunity.

Morton made extended inquiries among retail shoe dealers and found "that this peculiar condition had not only been frequently recognized by them, but that it is also considered to be quite common. Almost every intelligent shoe retailer has seen a number of persons to whom this disease has been a source of frequent suffering, and who believe their malady to be beyond relief by medical art; indeed, it would seem that in some of the most severe of the cases it has been found impossible to obtain the serious consideration of their condition by their medical attendants."

So recently as 1891 Bradford† has written:

"It is somewhat singular that an affection that is not infrequent in these days of thorough investigation of all ailments should have attracted but little attention, either in the researches of surgeons or of neurologists. The cases are so usually classed among the ill-defined hysterical or nervous affections, and not thoroughly investigated; or they are deemed to be gouty, as, in the minds of many practitioners, are frequently all affections of the toes."

The disease has not been observed before adolescence. Women are certainly more predisposed than are men, and its occurrence in the former sex I should judge to be almost twice as frequent as in the latter. One foot is most usually involved, especially in those cases apparently taking origin from an injury. But very frequently one foot is affected to an almost unbearable degree, while its fellow is but slightly involved. Neither right nor left foot appears to be most liable to involvement unless one or the other is constantly subjected to a motion, as in running certain sewing machines, looms, lathes, etc., while the other is not employed. In this case, as in one of my own, the pain developed in the foot so employed. When both feet become simultaneously affected the cause will often be found in ill-fitting or tight shoes. Middle life is the period at which the disease is most apt to develop or to become severe. The aged are by no means exempt, although in them more purely gouty or neuralgic forms are prone to occur, and persons at any age, so predisposed, appear to be much more liable to the affection—idiopathic or traumatic—than are others.

The influence of heredity is very marked. I know of several families in which a number of persons, mainly confined to the female sex, are similarly affected. It is interesting to note that in these instances

\* *Lancet*, March 2, 1889, p. 346.

† On a Form of Painful Toe. *Lancet*, 1892, vol. i, p. 628.

‡ *Lancet*, April 6, 1889, p. 707.

\* Metatarsal Neuralgia, or Morton's Affection of the Foot. *Boston Med. and Surg. Journal*, 1891, vol. ii, p. 52.

† *Loc. cit.*

some cases have arisen from twists or sprains of the foot, and others apparently idiopathically.

The exciting or immediate cause of metatarsalgia is usually excessive or unusual exercise of the feet while confined in new, tight, or ill-fitting shoes, as in walking over rough surfaces (mountain climbing), dancing, playing lawn tennis, etc., or in changing from a firm-soled shoe to one that permits great motion of the metatarsal arch. When the heads of the metatarsal bones are rigidly held in contact by a tight shoe it is reasonable to believe that a very slight twist or wrench of the foot would bring great pressure to bear upon the sensitive branches of the digital nerves distributed upon and about them, and, particularly in those predisposed thereto, bring about a neuralgic and even neuritic condition. This once set up, and the nerves having become sensitive, swollen, or inflamed, ever so slight repetitions of the pressure or bruising are capable of originating the most agonizing suffering. Later, continuous or frequently recurring attacks of this pain, or actual ascent of neuritis, commence reflex contractions and other neuritic complications, perhaps of the gravest type, as witness in Case I of my series, where the patient had become bedridden and severely neurasthenic.

So far as relates to symptomatology, I shall depend upon quoting a few more or less typical cases from the literature of the subject and upon the histories of my own operative cases, but may here mention that I regard the *imperative necessity of removing the shoe*, regardless of surroundings, when a paroxysm comes on, as a pathognomonic symptom of the disease. It may also be said that no evidence of the disease can usually be felt or seen, except that the parts are often of a bluish tint and cold, from venous stasis, and have a tendency to profuse perspiration.

[The author then related the histories of six cases, and proceeded as follows:]

Morton also reports the following from another medical friend:

"For several years previous to 1864 I had been subject to occasional dislocations of a relaxed joint in the fourth toe of my right foot. They had always occurred in walking, and the symptoms were perfectly distinct; the reduction, which was usually effected without difficulty, by simply 'working' the toe, was equally unmistakable.

"In the summer of that year I was climbing a mountain, when the joint became displaced; and, as it would speedily have slipped out again if reduced, I allowed it to remain luxated until I had finished the ascent and returned to the base, when the pain was so great as to make it necessary for me to ride home. After several hours of suffering, the joint gradually resumed its normal state.

"Since that time I do not remember that the luxation has ever taken place; but I have had many attacks of neuralgic pain in the part, coming on generally after exercise, but sometimes after sitting in one position, as in my carriage. Often exercise does not induce it. Heat, as from the pavements or the sand in summer, is a much more frequent cause. It begins gradually, and sometimes wears away in the same manner, but sometimes vanishes suddenly, as if by magic, without the use of any means of relief. The pressure of a boot always aggravates it; but it has attacked me while in bed at night. Diversion of the mind will often allay it, but it sometimes comes on again afterward with far greater severity.

"In 1869, while spending most of the summer at Atlantic City, I suffered more from this trouble than ever before or since. It would then often come on at night, after a day in town; and once or twice the attacks lasted more than twenty-four hours. So great was the annoyance from it that I proposed amputation of the toe to a surgical friend, but he advised me against it. Since then it has been much less troublesome, though I have sometimes had it more or less every day for a week.

"Deep pressure over the metatarso-phalangeal joint is painful, but does not bring on an attack unless long continued. Cold has given me more effectual relief than any other remedy I have tried."

[The histories of three of Dr. Thomas G. Morton's cases were then quoted, and the author continued as follows:]

Charles K. Mills,\* in a lecture upon Pain in the Feet, relates the his-

tory of a typical case that was entirely relieved by the operation of Morton. A woman, in jumping upon rocks, twisted her foot. The foot apparently was not injured, and she was soon about as usual. During the next two years, at intervals of from two to eight weeks, a peculiar pain in the foot would develop that would last two or three days. Two years later she injured the foot again in the same manner. After this the pain was seldom absent more than a few days, and each recurring attack was of increased violence. Again, two years later, the pain became almost constant. The pain was a dull, heavy, sickening ache, from the foot to the hip, and with a sharp pain through the foot. At times the ache would be limited to the foot, but the sharp pain was there constantly. Arising in the morning, the patient could not put her weight upon the foot until she had taken hold of it suddenly from the top and pressed it hard together, and held it in both hands with all her strength for some minutes. After exhausting every known local and general remedy, the fourth metatarso-phalangeal articulation was excised. The patient subsequently slowly became free of every vestige of the former pain, and was entirely restored to health.

Poulosson\* describes an instance where a medical man, twenty-nine years of age, had suffered from this affection for some years. It gave no trouble when the foot was at rest and without a shoe, but was usually brought on by wearing boots and walking a good deal. It was much more likely to occur when going down than in going up hill. The pain came on suddenly, a feeling of something having given way in the feet accompanying the onset, together with a kind of grating sensation. After this the patient walked lame, for all pressure of the anterior portion of the sole of the foot to the ground was painful. If walking was persisted in, the pain increased, till in a few moments it attained its maximum, rendering all further attempts at locomotion impossible.

Edmund Roughton† has reported the following case:

"A medical man, aged thirty-three years, complained that for eighteen months he had suffered from attacks of burning pain in the fore part of the sole of the left foot. The pain occurred several times a week, and was usually brought on by prolonged standing or by walking any considerable distance, and was so severe as sometimes to cause him to remove his boot and grasp the sole of his foot with his hand. On examining the foot, I found that the transverse arch formed by the heads of the metatarsal bones had sunk, so that a distinct convexity replaced the concavity normally found in this situation.

"In this case the patient had increased considerably in weight during the period of development of the symptoms, and his transverse metatarsal ligament had presumably been unequal to the increased strain."

E. H. Bradford‡ has reported a series of thirteen cases, none of which, however, were severe enough to demand operation. In these the symptoms were not in a single instance the result of traumatism, nor was any evidence of dislocation or other local change observable. These patients were all in enjoyment of excellent health, and in none were there evidences of gout or rheumatism.

*Treatment.*—The less severe forms of metatarsalgia may often be prevented from running into the more serious types by proper shoe construction or by wearing a narrow flannel bandage about the ball of the foot. Morton, whose suggestion the latter is, directs that the bandage be two inches wide and long enough to wrap neatly and firmly about the metatarsus some five or six times. The end is pinned, and the stocking drawn over. This has given marked relief in a number of cases.

The shoes for persons suffering from this disease should be firm-soled, make no lateral pressure upon the metatarsus, yet have the in-step tight enough to prevent the foot slipping forward. The great object of the shoemaker should be to prevent pressure, either lateral or antero-posterior, upon the metatarsal arch, and also to prevent any rolling motion of the outer metatarsal heads upon their fellows. A broad, rigid sole would appear to best fulfill this last indication. Bradford proposes the use of digitated stockings in these cases, with a view of

\* *Lancet*, 1886.

† *Lancet*, March 16, 1889, p. 553.

‡ *Lancet*, 1891.

keeping the toes farther apart. As the foot spreads when the weight of the body is thrown upon the member, it is apparent that the individual should be standing when the measurements for shoes are made, as is now advised by Groom.

The use of various pads in the shoe and about the toes, also such measures as the hollowing out of cavities in the sole opposite one or more of the metatarsal heads, have been tried, but invariably found unsatisfactory. A variety of the affection calling for so much attention to secure comfort would clearly demand the certain cure to be afforded by operation.

In persons where rheumatic or gouty diathesis may be suspected appropriate remedies for those disorders should be given a thorough trial before operative measures are resorted to. But when the condition is entirely of local mechanical origin the employment of general or local medicinal agents is useless. On the other hand, prolonged rest in bed will benefit all cases more or less, and occasionally secure relief for long periods, or even permanently cure the milder phases of the disorder.

Operative treatment should be limited to excision of the metatarsophalangeal articulation from which the neuralgia radiates, or perhaps to amputation of the corresponding toe above the joint, as have been recommended by Morton and indorsed by other writers. These procedures are among the safest and simplest in surgery. Of amputation of the toe, together with its metatarsal head, nothing more need be said than that by this measure the possibility of subsequent trouble arising from a tendency of the toe to retract and ride above or below its fellows is excluded. However, this heretofore occasionally troublesome sequel can be avoided by dividing the extensor and flexor tendons while excising the joint, as I have done in five cases with most satisfactory results.

*Operation.*—Primary union should be aimed at. To secure this the foot must be scrupulously cleansed. The nails should be trimmed short. Then soap, water, and nail-brush should be liberally applied. Following this, the member should be soaked in a two-and-a-half-per-cent. carbolic-acid solution, and finally dressed in a moist carbolic dressing of the same strength until the surgeon is about to operate. Where the foot is especially foul it is my custom to finally dip it into a saturated solution of permanganate of potash until colored to a dark mahogany hue, and then transfer it to a saturated solution of oxalic acid until decolorized, before applying the temporary dressing. When the surgeon is about to operate the temporary dressing is removed and the parts given a final douche with 1-to-1,000 sublimate solution.

A vertical incision from one and a half to two inches long is made, beginning over the proximal interphalangeal joint and extending upward in the center line of the toe.\* The extensor tendon now comes into view, and is divided. Another stroke of the knife carries the incision through its entire length down to the bone. The handle of the knife or other moderately blunt implement is then employed to separate the tissues from the upper and lateral portions of the joint. Next the blades of a powerful sharp-pointed, narrow-bladed cutting pliers are pushed down on either side of the phalanx immediately below its base (hollow of the blades always toward the articulation), and this bone divided. The metatarsal bone is then similarly divided just above its head. The separated joint is now seized by bone forceps and dissected away from any remaining attachments. This done, the flexor tendons will be seen lying in the bottom of the wound, and should be picked up by forceps and divided with scissors. If hemorrhage is severe and not controllable by moderate compression of the parts, ligatures should be applied. I have never had occasion to apply a ligature in this operation, as the pressure of the dressing has always sufficed to control any oozing that might continue after the sutures had been applied. The wounded edges are next to be approximated—no drainage being required if asepsis has been maintained—by continuous or interrupted suture, as may be preferred. A gauze and cotton dressing is finally applied and bound firmly on with a wet gauze roller, care being observed to place little pads of the gauze in such positions as will hold the toe in its proper position during healing.

\* This joint has also been excised through an incision in the sole, but the method is objectionable on many grounds.

The foot should be kept considerably elevated for the first two days, after which it may be brought to the level of the bed. I prefer my cases to remain in bed or on a couch until the fourth or fifth day, when they may be permitted to sit up with the foot resting on a chair. At the end of a week the sutures are removed, two or three days after which the patient is permitted to move cautiously around, while at the termination of three weeks all restraint may be removed and a firmly healed wound and permanent cure confidently expected. No special form of shoe or particular care of the foot is afterward required.

In case suppurative should arise in the wound, the sutures should be at once removed, the wound cavity washed out with full strength peroxide-of-hydrogen solution, then with 1/1000 corrosive-sublimate solution, and gently stuffed with iodoform gauze, all of which should be repeated every one or two days until the wound closes by granulation.

In addition to the references given in the text the following may be mentioned to complete the bibliography of the subject:

Groom, *System of Surgery*.

Agnew's *Surgery*.

Erskine-Mason, *Am. Journ. of the Med. Sci.*, October, 1877.

Editorial, *N. Y. Med. Journ.*, Oct. 8, 1892, Morton's Painful Affection of the Foot.

Roswell Park, *Med. News*, 1892, vol. ii, p. 406, Morton's Affection of the Foot.

Meade C. Kemper, *Virginia Med. Monthly*, vol. viii, p. 522, Case of Metatarsal Neuralgia.

In the discussion Dr. W. W. Keen said that the affection had not seemed to him to be so frequent. He had seen only one case—that of a lady about going to Brazil. He had operated five years before on both feet. Since then she had been able to walk perfectly well and to dance.

Four years ago the speaker had had an attack which he had thought might be the same. This attack had interested him in connection with the diagnosis, because he had had every symptom that Dr. Morton had described. The attack had come on about the time of his summer holiday, and he had been unable to walk without limping from the excessive pain. When the pain came on he was compelled to go to his room or sit down where he happened to be and remove the shoe. He had a pair of shoes made with a thicker and wider sole and a little larger, but without relief. When he came home he was tempted to have the operation done. He, however, consulted his friend Dr. J. C. Wilson, who suggested a gouty origin and put him on appropriate treatment; the pain disappeared, and he had been perfectly well ever since. He mentioned this in connection with the diagnosis, as there had been the pathognomonic sign of having to sit down and remove the shoe when the pain came on.

Dr. Thomas G. Morton had generally found the disease in one foot, but occasionally in both, and had often operated on both feet at the same sitting. Now and then he had amputated the toe instead of resecting the joint. The pain in many cases was slight, and only required a proper shoe and a flannel bandage to keep the toes from rolling; in others nothing except an operation would suffice. In regard to shoes, a shoemaker of the city had told him that one of his customers had had more than fifty pairs, hoping in each new pair to have greater relief.

The question had been raised as to whether the painful nerve might not be excised instead of excising the joint of the toe. He apprehended there would be great difficulty in finding the nerve, and unless all the soft parts surrounding the joint were removed, some branches would remain; while if the pain was due, as he thought it was, to the peculiar relation of the fourth joint as compared with the third and the fifth, no treatment except joint removal would answer.

**Professor Virchow's Welcome Home.**—The *British Medical Journal* for April 29th publishes the following account of Professor Rudolf Virchow's welcome at the first meeting of the Berlin Medical Society (on April 19th) after his return from his visit to England:

"On his entrance, all those present rose, and Dr. Siegmund, vice-president of the society, delivered the following address:

"MUCH-REVERED PRESIDENT: The long period we have missed you from the chair has been for you one of the richest of your life. A great



nation has shown you its acknowledgment and reverence to an extent and with an enthusiasm far exceeding all homage ever rendered to a man of science. Some extolled in you the teacher, others then fellow worker in the most diverse scientific fields. But if we ask what was it that secured you your exceptional position and the sympathy of all classes of society, even to the very highest, the answer must be that it is not only as a scientist that you are known abroad: your endeavor to turn every advance in science into a means of general progress, together with the manly and steadfast manner in which you defended what you considered to be right and useful, have gained for you a popularity beyond the boundaries of our empire. No nation is more ready to acknowledge such deeds than the English, which as regards the practical arrangement of life serves as the highest model. We thank the English nation for the distinction it has conferred upon you. We thank you for having caused the part taken by Germany in the advance of science to be so universally acknowledged; and if we may venture to add a wish, it is that you may long retain the qualities in which you excel and the strength which Goethe called the 'endurance of the North.'

"Professor Virchow replied as follows: Dear Friend—Highly Honored Colleagues: I must confess it was not quite necessary that you should, by this unusual reception, continue that ovation from which I have only just freed myself. The circumstances which made my reception in England so extraordinarily warm are partly to be traced to a certain indebtedness on my side. Many years since some of the learned bodies in England, chiefly both the older universities, expressed to me their desire to bestow on me some special honor, and invited me with that view, but I withstood these requests with a certain—I might say, perhaps, not quite courteous—firmness. It was rather difficult for me, but I may say that this kind of public ceremony is not quite to my mind. This time, however, I could not refuse it. After the oldest and greatest of the scientific bodies of England—the Royal Society—had conferred this great honor on me, and conferred it *in absentia*—a very unusual thing—I had at last to give expression to that feeling of gratitude which indeed stirred me deeply; and thus I went at last also to Cambridge and to Oxford. Anyhow, you now see me before you, invested with honors of a rare kind—as Doctor of Civil Laws and Doctor of Science, which were both very strange titles to me. In one respect, however, I am indeed very greatly indebted to you for this reception, and that is that you have told me through your chairman that you wanted to express at the same time to the English nation—we may almost say so—at least to the English learned professions, your gratitude for the honor rendered to one of your compatriots. I have indeed looked upon my journey to England as a kind of international mission, quite as much as I did last year when I went to Russia. I have always been of the opinion that every man should assist, as far as possible, in strengthening the cordial relations between nations by means of his own personal influence; that I have succeeded in this to a higher degree than I ever dared to hope is to me in reality the greatest gain that I bring home from this journey. But I am glad to see that you also acknowledge this by rendering on your own behalf thanks for the reception, by which, properly speaking, it was intended to honor you as well, for in bestowing honor on me the English, in reality, wanted to bestow it on Germany. This was intimated to me on several occasions. It was not my own person alone, it was German science, German labor, for which this acknowledgment was intended. Gentlemen, we are all of us accustomed to work in the same way, and perhaps some of you will obtain in future something similar. Let us continue to work assiduously. So far as I am concerned, I am glad to state that I hope my strength will still last long enough to make it possible that you should still now and then suffer a little from me."

**The Association of American Physicians.**—The eighth annual meeting will be held in the Army Medical Museum and Library Building in Washington, on May 30th and 31st and June 1st, under the presidency of Dr. Alfred L. Loomis, of New York, besides whose address the programme gives the following:

On the Course and Treatment of Certain Uræmic Symptoms, by Dr. Beverley Robinson, of New York; The Reaction of the Urine with Ether, by Dr. A. H. Smith, of New York; The Detection and Significance of Proteids in the Urine, by Dr. C. W. Purdy, of Chicago; The

Probable Origin and Early Symptoms of Certain Chronic Diseases of the Kidneys, by Dr. C. S. Bond, of Richmond, Ind.; A Study of Addison's Disease and of the Adrenals, by Dr. W. Gilman Thompson, of New York; Two Cases of Cystin Calculus, by Dr. James Tyson, of Philadelphia; On a Simple Continued Fever, by Dr. G. Baumgarten, of St. Louis; The Treatment of Typhoid Fever, by Dr. S. G. Fisk, of Denver; Crenate in the Treatment of Tuberculosis, by Dr. J. T. Whitaker, of Cincinnati; The Intestinal Origin of Chlorosis, by Dr. F. Forchheimer, of Cincinnati; Coffee-drinking as a Frequent Cause of Disease, by Dr. Norman Bridge, of Los Angeles; Experimental Observations concerning the Nature of Chorea, by Dr. H. C. Wood, of Philadelphia; Discussion on Myxoedema (referee, Dr. F. P. Kinnicut, of New York; co-referees, Dr. James J. Putnam, of Boston, and Dr. M. Allen Starr, of New York); Report of a Case of Myxoedema, by Dr. W. Gilman Thompson, of New York; Sporadic Cretinism in the United States, by Dr. William Osler, of Baltimore; Some Problems in the Etiology and Pathology of Texas Cattle Fever and their Bearing on the Comparative Study of Protozoan Diseases, by Dr. Theobald Smith, of Washington; The Prophylaxis of Cholera, with Special Reference to Immunization, by Dr. E. O. Shakespeare, of Philadelphia; A New Pathogenic Bacillus, by Dr. H. C. Ernst, of Jamaica Plain, Mass.; Experiments with the Bacillus Diphtherie, by Dr. A. C. Abbott, of Philadelphia; Gonorrheal Myocarditis, by Dr. W. T. Councilman, of Boston; The Parasitic Nature of Cancer, by Dr. Heneage Gibbs, of Ann Arbor, Mich.; Acute Follicular Tonsillitis, by Dr. Starling Loving, of Columbus; Sarcoma of the Lung, with Specimen, by Dr. D. W. Prentiss, of Washington; The Importance of Uterine Displacements in the Production of Vomiting during the Early Stages of Pregnancy, by Dr. G. M. Garland, of Boston; Uterine Drainage in the Several Forms of Inflammation of the Uterus and its Appendages, by Dr. William M. Polk, of New York; Pulsating Pleural Effusions, by Dr. James C. Wilson, of Philadelphia; Subphrenic Abscess, with Special Reference to Cases which Simulate Pneumothorax, by Dr. A. L. Mason, of Boston; Subphrenic Abscess, by Dr. S. J. Meltzer, of New York; Two Cases of Diaphragmatic Hernia, by Dr. James Tyson, of Philadelphia.

**The American Laryngological Association** will hold its fifteenth annual congress in New York on the 22d, 23d, and 24th inst., under the presidency of Dr. Morris J. Asch, of New York. The sessions will be held at the Academy of Medicine, No. 17 West Forty third Street. Besides the president's address, the programme gives the following titles:

On Spasmodic Fixation of the Vocal Bands in or beyond the Median Line, by Dr. S. Solis-Cohen, of Philadelphia; A Case of Complete Glottic Spasm in an Adult, followed by Unconsciousness and Prolonged Drowsiness, by Dr. W. Peyre Porcher, of Charleston; The Withholding of Statistics in Operations for the Relief of Cancer of the Throat, by Dr. D. Bryson Delavan, of New York; Arthritis Deformans of the Larynx, by Dr. W. E. Casselberry, of Chicago; Recurrence at a New Site of a Laryngeal Growth (Papilloma) in a case already reported under the title Evulsion of a Laryngeal Tumor which returned Twenty-two Years after its Removal by Laryngotomy, by Dr. R. P. Lincoln, of New York; Intubation in the Adult, by Dr. George M. Lefferts, of New York; Rhinitis (Edematosa)—Laryngitis Hiemalis, by Dr. J. C. Mulhall, of St. Louis; Two Cases of Tuberculosis of the Nose, by Dr. John W. Farlow, of Boston; Remarks on the Structure of Edematous Nasal Polypi, by Dr. Jonathan Wright, of Brooklyn; The Use of Ozone in Atrophic Catarrh, by Dr. C. C. Rice, of New York; The Cautey in Uvulotomy, by Dr. T. A. DeBlois, of Boston; Salivary Calculi, with Reports of Cases, by Dr. Clinton Wagner, of New York; Buccal Voice: Illustrated by the Presentation of a Patient who Phonates without a Larynx and without the Use of his Lungs, by Dr. J. Solis-Cohen, of Philadelphia; Remarks on Congenital Defects of the Face, with the Exhibition of a Rare Form of Cleft Palate, by Dr. Harrison Allen, of Philadelphia; Aspergillus Mycosis of the Antrum Maxillare, by Dr. John M. Mackenzie, of Baltimore; An Improved Method of draining the Antrum of Highmore, by Dr. George W. Major, of Montreal; On some of the Manifestations of Syphilis of the Upper Air-passages, by Dr. J. H. Bryan, of Washington; A Case of Sarcoma of the Soft Palate illustrating the Degeneration of a Benign (Papilloma) into a Malignant Growth,

with Specimen, by Dr. W. K. Simpson, of New York; also a discussion on Diphteria, its Prophylaxis and Treatment, to be opened by Dr. Mulhall and Dr. Robinson.

**Dr. Dujardin-Beaumetz's Treatment of Obesity.**—"For the treatment of obesity in a person whose heart and arteries are sound," says the *Lancet's* Paris correspondent, "the above-named physician recommends the following method: Every morning a general body-sponging with hot eau de Cologne and water, followed by dry rubbing and massage. A tumblerful of purgative water is then administered. At the end of each meal a dessertspoonful of the following solution is swallowed: Fifteen grammes of iodide of potassium and 250 grammes of water. The undermentioned regimen is to be rigorously observed: First meal at 8 A. M., a cup of chocolate and 20 grammes of bread. Second meal, 2 eggs, or 100 grammes of meat; 100 grammes of green vegetables or salad; 15 grammes of cheese, a little fruit, 50 grammes of bread, a glass and a half of liquid (a light white wine with Vichy water). Third meal at 7 P. M., no soup, 100 grammes of meat, 100 grammes of green vegetables or salad, 15 grammes of cheese, fruit, 50 grammes of bread, a glass and a half of liquid (white wine with Vichy water). No drinking between meals, no tea, coffee, cognac, or other alcoholic beverage. Plenty of exercise in the open air."

**The Philadelphia Society of Philosophy.**—The *Gazette-médicale de Paris* publishes a communication from the University of Paris to the Philadelphia Society of Philosophy, on the occasion of the society's centennial festival, which may be translated as follows: "The University of Paris takes pleasure in saluting your society, which is so successfully cultivating the philosophical sciences in a country that Europe too often looks upon as wholly given over to industrial and commercial affairs. It was fitting that the State which counted among its citizens such a practical philosopher as Franklin should hold aloft and steady the banner of philosophy in the United States of America. France does not forget that Pennsylvania sent her that great patriot, who linked your young nation and old France in bonds of affection, or that it was on the outskirts of Philadelphia that La Fayette, in his first battle, sealed with his blood that nascent and imperishable friendship. We are fond of remembering, too, that Franklin not only won for his country the sympathies of France, but, by the simple dignity of his life, by his words, and by his writings, prepared us for liberty by showing us that a great nation could govern itself. These ineffaceable memories assure you, gentlemen, of the sincerity of our wishes for your society and for the great republic of the United States of America."

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, May 18th, was a paper on The Organization and Equipment of the Division of Disinfection, New York Health Department, and the Method of Work, by Dr. H. M. Biggs.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 24th inst., papers are to be read as follows: On Internal Massage of the Nose, by Dr. W. Freudenthal; and Tuberculosis of the Pharynx and Larynx, by Dr. F. S. Crossfield, of Hartford, Conn. Dr. Phillips will show a new electrical head-illuminator, and Dr. F. E. Hopkins will give the history of an unusual case of tuberculosis, and show the larynx.

**The late Dr. Charles Carroll Lee.**—At a meeting of the faculty of the New York Post-graduate Medical School, held May 12, 1893, the following resolutions were unanimously adopted:

"The directors and faculty of the New York Post-graduate Medical School and Hospital wish to record their keen sense of the great loss they have sustained in the death of Charles Carroll Lee, M. D., LL. D., one of their professors of diseases of women.

"Dr. Lee was a teacher of the highest rank, being able to intently interest his hearers, and to convey to them a clear sense of his views upon the cases in his very important department.

"Dr. Lee was a Christian gentleman who bound himself to his associates and to those who were instructed by him by the most affectionate ties.

"We deplore the great loss we have suffered. We shall ever count it an honor that for so many years he was one of the faculty of the New York Post-graduate Medical School and Hospital, and we respect,

fully present to his family our earnest sympathy in their supreme bereavement.

[Signed.]

"D. B. ST. JOHN ROOSA, President.  
"CLARENCE C. RICE, Secretary."

**The late Dr. Frank H. Ingram.**—At a meeting of the board of pathologists of the New York city asylums for the insane, held April 4, 1893, the following resolution was adopted:

*Whereas*, Death has deprived this board of one of its most valued members and each personally of an esteemed and worthy professional brother, Dr. Frank H. Ingram; therefore be it

*Resolved*, That the members of this board express their regret at the untimely termination of his promising career, and that they extend to his family the expression of their deep sympathy with them in this great affliction.

[Signed.]

FREDERICK PETERSON, M. D., *Conciliator*.  
J. P. MCGOWAN, M. D.,

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of;—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the typesetters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

## Original Communications.

## GASTRIC ANACIDITY.

By ALLEN A. JONES, M.D.

INSTRUCTOR IN PRACTICE, AND CLINICAL INSTRUCTOR IN MEDICINE,  
MEDICAL DEPARTMENT, UNIVERSITY OF BUFFALO.

GASTRIC ANACIDITY designates that condition of the stomach in which its contents are habitually neutral or alkaline in reaction at a time when they ought to be acid. Before the contents of the stomach were systematically studied this condition escaped notice. The importance of this disorder lies in the fact that gastric digestion is not carried on, and therefore the organism is deprived of one of its greatest sources of nutrition. Furthermore, the whole task of digestion is imposed upon the intestine, which soon becomes incapable of performing it perfectly. The general health necessarily suffers, and the greater its impairment, the less perfectly can the digestive apparatus perform its functions, and the less perfectly such functions are performed the more profound becomes the general debility; thus a vicious cycle of morbid events results from disturbed primary digestion, and the conditions will not be bettered except by striking at the primary disturbing element.

*Ætiology.*—Gastric anacidity may occur as a secretory neurosis, just as may hyperacidity occur; or it may be brought about by depression of the vitality from chronic disease in other parts of the body. It is sometimes the direct result of atrophy of the gastric tubules depending upon chronic gastric catarrh, or upon some general malnutrition, and, indeed, whenever anacidity is obstinately present such atrophy probably exists. I have found it present not infrequently with malignant disease of the stomach. In several cases, two of which are reported below, persistent anacidity existed with extensive gastrectasia. I have found anacidity in very corpulent and in thin persons. It is a disorder most commonly found in middle and advanced life, and in females more frequently than in males. Prolonged hard work and worry seem occasionally to induce it.

*Symptoms.*—The symptoms accompanying gastric anacidity are not characteristic. They are in some cases located in or about the stomach, while in other cases remote symptoms—such as anæmia, backache, headache, languor, and weakness—are complained of. The symptoms alone often arouse a suspicion of some totally different intragastric condition. In some cases paroxysms of gastralgia occur, independently of the time of eating. Anorexia is not usually present in this state; on the contrary, there frequently exists a morbid craving for food, which, however, is curbed by the patients, who fear that food will cause pain or some other distressing symptom. Gastric flatulency is occasionally very prominent in this disease. Nausea and vomiting sometimes occur. Burning, fullness, weight, and indefinite distress are more often complained of than any other symptoms. In some cases chronic diarrhœa exists. The graver forms of the disease entail serious failure of the general health and render patients pale, weak, thin, and wretched year after year.

*Diagnosis.*—External examination with a view of determining the size, shape, and position of the stomach in a proportion of the cases of anacidity reveals marked gastrectasia. The existence of dilatation is confirmed by the direct examination, but by repeated investigations these dilated stomachs are often found comparatively sufficient as regards motion. Direct examination also reveals the true state of gastric digestion. If the gastric contents are examined three hours after a meal of meat, bread, and potato, the foods are found practically unchanged, simply water-soaked, and floating or sinking in the wash water. They show no signs of having been acted upon by solvents; they are not dissolved or disintegrated sufficiently to stain the wash water. The reaction of the contents is usually neutral, although slight alkalinity may be present. Mucus may or may not be present; usually it is not present in large quantities. On the whole, the contents appear as though they had been lying for a few hours in a rubber bag or in a bladder.

Chemical examination shows that no gastric digestion has taken place. The contents are anacid, and the filtrate contains at best but a little dissolved albumin. No syntonin, none of the albumoses, no peptone are present. Rennet is usually absent. The starch in solution is sometimes partially changed, as is shown by the erythrodestrin reaction (purple with Lugol's solution), or the dissolved starch not uncommonly present unchanged.

These intragastric conditions are found every day for weeks and every week for months and every month for years; so there is no question as to the reality of gastric anacidity which, so studied, conveys to our minds not only an absence from the stomach of HCl and lactic acid, but a state of complete and permanent abeyance of gastric digestion. The bearing of such a condition upon the general health is of paramount importance. The following four cases of this disease consulted Dr. Charles G. Stockton, and, as I had the privilege of treating them, by his courtesy I am able to report them.

CASE I.—Mrs. H., aged forty-three, married; mother of two healthy children; occupation housewife. Family history negative. The patient was always healthy until four years ago, when she had a severe attack of retching and vomiting. Since that time she has had at irregular periods paroxysms of intense gastralgia lasting several hours and simulating biliary colic. The bowels are always sore for about two weeks after an attack. She has never found any gall stones. The gastralgia is accompanied by vomiting with great restlessness and nervous excitement. She screams repeatedly while in pain and manifests a neurotic state in many ways. She sleeps poorly if in dread of pain, and can not lie down when it is present. Anæsthesia of the conjunctivæ and hyperæsthesia over the abdomen are present. Motion is slow, and the face expresses melancholy. The heart is weak; blood-vessels not diseased; lungs normal; appetite good during the intervals between the attacks of pain. Nervous belching at times persistent. Tongue small and slightly cyanosed, with a universal thin, white coat. Bowels very regular. Skin thick, muddy, moist, and relaxed. Urine hyperlithuric. Weight, two hundred pounds.

Direct examination of the stomach in this case twelve times in two months always revealed anacidity and suspension of gas-



tric digestion. On July 23, 1891, two hours and a half after a roll and coffee, I found the former present entirely unchanged, with the contents neutral in reaction, no mucus, no syntonin, no albumoses, no peptone, no rennet, dissolved starch undergoing transformation under continued salivary action.

On July 24, 1891, the stomach was empty two hours after half a pint of peptonized milk, and the first water was neutral in reaction.

Anacidity was found at all the subsequent examinations. I never found any evidence that gastric digestion had taken place. The motion was sometimes active, sometimes sluggish. The treatment consisted in the administration of HCl, predigested foods, *mistura asafetida*, plain mixed diet, cold spinal douches, and the application of the constant current within the stomach. Great relief followed, and the patient experienced no gastralgia until January of this year (1893), when I was called to see her suffering with the old pain and manifesting the old nervous symptoms. I again prescribed nervines and hydrotherapy, which were followed by relief.

CASE II.—Mrs. C., aged thirty-six. Married and had two healthy children. Had diarrhea for several years. External examination of the stomach showed the lower border on a level with the umbilicus; splashing was readily elicited. Numerous direct examinations of the stomach, extending over a period of several months, invariably showed the food present unchanged and mixed with more or less mucus. The contents were neutral in reaction; no albumoses, no peptone, were ever found. Rennet was occasionally present. Starches were incompletely changed. In this case the motion was usually sufficient to empty the stomach in about five hours, and thus tax the intestine with the whole labor of digestion. Eye-strain in this case existed to the extent of the following refractive error: R. + 0.75 D.  $\ominus$  + 0.50 D. c. ax. 70, V.  $\frac{3}{5}$ . L. — 0.25 D.  $\ominus$  1.25 D. c. ax. 105, V.  $\frac{3}{5}$  Snellen.

CASE III.—Mr. H., aged fifty. Eight years ago, while in Egypt, had a severe attack of vertigo and nervousness. Since that time has suffered repetitions of the same. December 20, 1892, appetite poor, eructations complained of; no other direct gastric symptoms. Bowels usually regular. External examination shows lower border of the stomach about four inches below umbilicus; clapotage marked. I made direct examination of the stomach two hours and a half after oatmeal, cream, rolls, baked apples, and coffee. All the food was entirely undigested, lying in a water-soaked condition. The contents were neutral in reaction; a good deal of tenacious, ropy mucus was present. No evidences of gastric digestion were discovered, as the albumoses and peptone were absent, the dissolved starch was not changed, and rennet was not present. I have since made many examinations of the stomach contents, but always with results similar to the above. The stomach usually emptied itself into the duodenum in from five to six hours after meals. The flesh, blood, and strength of this patient were very much lowered.

CASE IV.—Mrs. A., aged thirty-seven. Married. December 20, 1892, is much emaciated and very pale. Complains chiefly of gastric flatulence with fainting spells when the gas distends the stomach. Bowels regular. Lower border of the stomach three or four inches below the umbilicus; no gastropnoia. I withdrew the stomach contents December 21st by the ordinary means, three hours and three quarters after a breakfast of beefsteak, bread and butter, coffee with cream and sugar. The food was unchanged, contents neutral, no biuret reaction, rennet absent, dissolved starch digested. Repeated examinations of the stomach contents at periods varying from two to six hours after eating, and after various test meals, failed to reveal the slightest evidence of gastric digestion of albuminoids.

The stomach usually emptied itself from five to six hours after meals.

The urine in Case I was hyperlithuric; in Case II, negative; in Case III, negative; in Case IV, somewhat superacid, otherwise negative.

*Prognosis.*—If the affection is due to a purely reflex disturbance of innervation and the patient is young, the prognosis is most favorable. On the other hand, if the patient is middle-aged or old, and has passed through great physical and mental hardships, and if the condition persists for months without amelioration despite the best remedial efforts, probably atrophy of the gastric tubules has occurred and the prognosis is very unfavorable so far as restoration of gastric digestion is concerned. Life is not endangered by this disease except in so far as it renders the organism less resisting to other diseases.

*Treatment.*—When a diagnosis of gastric anacidity has been made the therapeutic indications are clear. We should try to re-establish gastric digestion by giving HCl in copious doses, and if no peptonization takes place under its influence, pepsin ought to be given with it, as atrophy of the gastric tubules may exist. Papain may be used, as it sometimes digests nitrogenous foods in a neutral medium. Large doses of *nux vomica* or strychnine and physostigma are useful both for their general and local effects. Certain direct local stimulants are sometimes useful; for instance, salt, capsicum, mustard, horseradish, Belfast ginger ale, etc., given with or before meals in moderate doses. Extract of malt affords great benefit if given for a long time. Quassin, quinine, and other vegetable bitters with arsenic are useful in some cases. It is a mistake, however, to give too much medicine in this condition, as, indeed, it is in almost every disease.

If the patient is neurotic, as in the first of the four cases above reported, phosphorus, *sumbul*, *asafetida*, valerian, electricity, and hydrotherapy are indicated. Massage, Swedish movements, Emersonian exercises, vapor baths are all to be chosen in preference to shotgun prescriptions. Peripheral irritations, such as ovarian disease or eye-strain, should be corrected at the outset.

The environment of the patient should be investigated, and overwork, worry, grief, unhappiness, or undue excitement should be obviated if possible. Prolonged change of scene and climate sometimes brings improvement. The diet should consist of predigested foods, as, for instance, peptonized milk and peptonized beef. These preparations afford extra nutriment to the patient, as they are largely absorbed from the stomach. All rich mixed dishes, such as mince pies and plum pudding, should be proscribed; while plain puddings, such as bread, rice, sago, tapioca, and cornstarch, may be allowed. The succulent fruits are very grateful, and the acid juices of orange, grape-fruit, and lemon seem to exert a favorable effect upon the stomach. Lime juice and acid phosphate also may be given. The major part of the food should consist of milk, eggs, tender meats, stale bread, zwieback, oysters, salt and fresh fish, well-cooked mashed potatoes, the succulent vegetables, etc. Salt fish and salt meats should be eaten freely, as the chlorides contained in them favor the development of HCl

in the stomach. Common salt should be used freely at table.

The direct treatment of the stomach is very important. Lavage ought to be practiced once or twice a week for many months, perhaps, at intervals, for years. Löwenthal\* recommends the use of a 0.6-per-cent. solution of sodium chloride at a temperature of 104° F. for lavage in these cases. I have been in the habit of using a weak saline solution for lavage in cases of hypochlorhydria, and in the treatment of anacidity I adopt the same plan.

The contents should be examined each week as to their reaction, which if acid should prompt the tests for HCl and lactic acid. Not infrequently, in several cases of gastric anacidity not reported in this paper, I have found the re-appearance of lactic acid, and in a few cases the re-establishment of HCl secretion. Electricity, interrupted and continuous currents, I use directly applied to the mucous membrane of the stomach by means of the Stockton electrode, and, in our experience, no measure yields better results. Dr. Einhorn† and I‡ have shown that the faradaic and galvanic currents will each stimulate the secretion of HCl in healthy and in some diseased stomachs. Therefore I use them both with a view of exciting the secretions of gastric juice, while I use the faradaic current to stimulate gastric peristalsis. If atrophy of the gastric glands has taken place, no therapeutic measure can renew their function, but we ought to work with the hope that atrophy has not occurred. In the last three of the cases above reported I believe atrophy existed, because after months of treatment the reappearance of gastric digestion was not noticed, although the motions of the stomach increased appreciably.

436 FRANKLIN STREET.

# A REVIEW OF THE MORE IMPORTANT METHODS FOR THE QUANTITATIVE DETERMINATION OF THE HYDROCHLORIC ACID OF THE GASTRIC JUICE.

By JULIUS FRIEDENWALD, A. B., M. D.,

DEMONSTRATOR OF PATHOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE.

SINCE the chemical examination of the gastric secretion has assumed such importance in the diagnosis and treatment of diseases of the stomach quite a number of new qualitative and quantitative methods have been introduced to determine, with more or less accuracy, the acidity of this secretion. Of the quantitative methods, we must distinctly separate those which are merely approximate in their value and which are intended for mere diagnostic and therapeutic purposes from those which are more scientific in their aims, more difficult to carry out, and from which we expect exact values. An hour after a trial breakfast after the manner of Ewald-Boas\* the contents of the stomach are obtained by the aid of a stomach-tube and filtered, and, after the

filtrate has been qualitatively examined and its entire acidity determined by the use of phenolphthalein\* as an indicator, one of the three following approximate methods may be employed for the quantitative determination of the free hydrochloric acid:

*Mintz's Method.*†—Mintz has tested the phloroglucin-vanillin reagent‡ of Günzburg, and has determined that its limit of accuracy is 0.0036 per cent. of the hydrochloric acid. The examination is thus carried out: To 10 c. c. of gastric filtrate one-tenth normal sodium hydrate\* is added until a reaction can no longer be got by testing with Günzburg's reagent. (A few drops of this reagent are placed in a small porcelain dish, together with an equal quantity of gastric filtrate, to which the one-tenth normal sodium hydrate has been added, and carefully heated to dryness over a small flame. If free HCl is present, a carmin-red mirror is formed.) If with 1.2 c. c. normal alkali a reaction can be got, but with 1.3 c. c. none, then the quantity of free HCl is  $12 \div 1$  c. c. one-tenth normal NaOH—that is, the acidity for free HCl is 13, which, multiplied by 0.00365, = 0.0474, the absolute percentage of free hydrochloric acid in 100 c. c. of gastric secretion. This method has been recently tested by Martius and Lüttke,|| and found to give sufficiently reliable but approximate results.

*Boas's Method.*—A weak watery solution of Congo red is prepared, which is used as an indicator. To 10 c. c. of gastric filtrate sufficient is added until a distinctly blue color is obtained, and then titrated with one tenth normal NaOH until the original red of the Congo solution is got. If, for instance, 5 c. c. of the one tenth normal NaOH has been used, the percentage of free hydrochloric acid in a hundred grammes of gastric secretion will be  $50 \times 0.00365 = 0.18$  per cent. This method gives not only the percentage of free hydrochloric acid, but also of free organic acids. However, the very small quantities of organic acids which are usually present in the gastric filtrate after a trial breakfast do not materially vitiate the results; if larger quantities are present, they must first be removed by agitating with ether. I have had frequent occasion to employ this method in Boas's laboratory, and have always found it convenient and satisfactory for practical purposes.

*Lüttke's Method.*^—Lüttke has recently recommended the use of tropæolin OO as indicator, instead of Congo dissolved in dilute alcohol; the yellowish hue of tropæolin is changed to red by the addition of free acids. This reagent is employed in a manner similar to that given above for Congo.

\* Ten c. c. of the gastric filtrate is titrated with a one-tenth normal sodium-hydrate solution (one to two drops of one-per-cent. phenolphthalein solution having been previously added to the filtrate) until a reddish hue is obtained.

† Mintz. Eine einfache Methode zur quantitativen Bestimmung der freien Salzsäure im Mageninhalt. *Wiener klin. Wochenschrift*, 1889, No. 20.

‡ Phloroglucin, 2; vanillin, 1; absolute alcohol, 30.

\* One-tenth normal sodium-hydrate solution is one which contains 0.004 gramme NaOH in each cubic centimetre; every cubic centimetre of this solution corresponds exactly to 0.00365 HCl.

|| Martius und Lüttke. *Die Magensaure des Menschen*, p. 91.

^ Martius und Lüttke. *Loc. cit.*, p. 67.

\* *Med. Week*, January 6, 1892.

† *Medical Record*, May 9, 1891, January 30 and February 6, 1892.

‡ *Ibid.*, January 13, 1891.

\* Thirty-five to seventy grammes of white bread and 300 to 400 c. c. of water.

Among the more scientific methods which may be employed for the determination of hydrochloric acid may be mentioned those of Heyner-Seemann, Sjöqvist, Lüttke, and Leo. They are intended for the estimation not only of free HCl, but likewise for that part of the HCl combined with inorganic as well as organic bases, so that they may be employed during any stage of digestion, even before hydrochloric acid has been set free. It must be stated in advance that none of these methods is devoid of certain errors, and that as yet no perfectly accurate and reliable method is known.\*

*The Heyner-Seemann Method,† also known as Braun's,‡*—If to a certain quantity of gastric filtrate a definite quantity of one-tenth normal NaOH is added, and the whole evaporated to dryness over a water bath and then charred in a flame, the organic material is converted into carbon dioxide, which escapes, so that from the remaining free alkali the percentage of hydrochloric acid is easily calculated. Example: Ten c. c. of gastric filtrate is exactly neutralized with one-tenth NaOH (say, 8 c. c.); it is now evaporated and charred, and the ash dissolved in water, filtered, and exactly the same quantity of one-tenth normal HCl<sup>§</sup> is added to the filtrate as normal NaOH was added before (8 c. c.). A few drops of phenolphthalein are added, and the whole titrated with one-tenth normal NaOH; if 3 c. c. would now be required for neutralization, 30 multiplied by 0.00365 would give 0.1095 per cent. free HCl. This method is recommended by Leube.||

*Sjöqvist's Method.⁵*—If a gastric filtrate to which barium carbonate has been added is evaporated to dryness, all the acids are changed into barium salts; now, by charring the mass the barium salts of the organic acids are converted into barium carbonate, while the barium chloride remains unchanged; a watery extract is then made; barium carbonate is insoluble in water, while the chloride passes over; the quantity of barium chloride is determined by titration, from which the HCl is calculated. The method is most conveniently carried out according to Bourget's ¶ modification, which Boas † has still further simplified. Ten c. c. of filtered gastric secretion to which a small quantity of pure pulverized barium carbonate has been added is evaporated

in a silver crucible over a water bath to dryness. The mass is then washed in the flame, allowed to cool, and then repeatedly extracted in warm water and filtered until the filtrate reaches 50 c. c. The filtrate now contains the chloride of barium alone, while the carbonate of barium has been left back on the filter. To the filtrate a saturated solution of sodium carbonate is now added; a precipitate of barium carbonate is formed. This is then filtered and washed until the filtrate no longer reacts alkaline. The filter with its contents is then removed, placed in a beaker glass in water, rubbed into pieces, and then sufficient one-tenth normal HCl added until all barium carbonate has passed into solution and reacts acid to litmus; after boiling to get rid of all CO<sub>2</sub> a few drops of phenolphthalein are added, and the whole titrated with one-tenth normal NaOH; if 10 c. c. of the one-tenth normal HCl has been used and on titration with the one-tenth normal NaOH say 4, then we have 6 c. c. one-tenth normal HCl in every 10 c. c. of the gastric filtrate, or 60 in every hundred, which, multiplied by 0.00365, = 0.02190 per cent. Until very recently this method was considered quite accurate, but Kossler\* has demonstrated that even this method has sources of error. He has shown that by the action of calcium chloride on acid potassium phosphates (and phosphates are always present in a trial breakfast) HCl is set free and escapes according to the following formula:  $\text{CaCl}_2 + \text{KH}_2\text{PO}_4 = \text{CaHPO}_4 + \text{KCl} + \text{HCl}$ . According to him, an error of from twenty to forty per cent. may be made in this way. Martius and Lüttke † have also for other reasons found this method inaccurate.

*Lüttke's Method.‡*—This method is a modification of that given by Vulhard for the determination of the chlorides in the urine. When to the gastric contents a strongly acidulated silver-nitrate solution is added in excess, a precipitate of chloride of silver is formed; if the chloride of silver is now filtered and the quantity of uncombined silver determined, the quantity of chlorides can easily be calculated. If, for instance, 20 c. c. of one-tenth normal AgNO<sub>3</sub> solution has been added to 10 c. c. of gastric secretion and after filtration only 10 c. c. of one-tenth normal AgNO<sub>3</sub> remains uncombined, then the other 10 c. c. of silver solution must have been used up in combining with the chlorine. The chlorides combined with inorganic bases can be similarly determined after evaporation and charring of the gastric contents; the ash is then extracted with water and the chlorides determined by adding an excess of one-tenth normal silver solution. The determination of the excess of AgNO<sub>3</sub> rests upon the following principle: If to a solution of silver nitrate strongly acidulated and containing some ferric sulphate a solution of sulphocyanide of ammonium is added, a precipitate of sulphocyanide of silver is occasioned and a blood-red color is produced when the last of the silver is precipitated. The sulphate of iron thus acts as an indi-

\* Boas. *Allgemeine Diagnostik und Therapie der Magenkrankheiten*, Zweite Auflage, p. 139.

† Seemann. Ueber das Vorhandensein freier Salzsäure im Magen. *Zeitschr. f. klin. Med.*, Bd. v, S. 272.

‡ Leo. *Diagnostik der Krankheiten der Verdauungsorgane*, 1890, p. 113.

§ One-tenth normal HCl is one which contains 0.00365 gramme HCl in each cubic centimetre. Each cubic centimetre of a one-tenth normal acid neutralizes exactly the same quantity of a one-tenth normal alkali.

|| Leube. *Specielle Diagnose der inneren Krankheiten*, Dritte Auflage, p. 241.

⁵ Sjöqvist. Eine neue Methode freie Salzsäure im Mageninhalt quantitativ zu bestimmen. *Zeitsch. f. physiol. Chemie*, Bd. xiii, S. 1, 1888.

¶ Bourget. Nouveau procédé pour la recherche et la dosage de l'acide chlorhydrique dans le liquide stomacal. *Arch. de méd. expér.*, 1889, No. 6, p. 844.

† Boas. *Centralblatt für klin. Medizin*, 1891, No. 2; also *Allgemeine Diagnostik und Therapie*, p. 144.

\* Kossler. *Zeitschrift für physiologische Chemie*, Bd. xvii, p. 107, 1892.

† Martius und Lüttke. *Loc. cit.*, p. 84.

‡ J. Lüttke. Eine neue Methode zur quantitativen Bestimmung der Salzsäure im Mageninhalt. *Deutsche med. Wochenschrift*, 1891, No. 49; and *Die Magensäure des Menschen*. Martius und Lüttke, p. 101.



cator and serves to show when all the silver has been precipitated.

(A) Determination of all chlorides: Ten c. c. of well-agitated unfiltered gastric secretion are placed in a 100 c. c. flask; 20 c. c. one-tenth normal silver solution\* are added; the flask is then well shaken and allowed to stand for ten minutes, and then filled up to 100 c. c. with distilled water, agitated, filtered through a dry filter into a dry beaker glass. Fifty c. c. of the filtrate are then titrated with a one-tenth normal sulphocyanide-of-ammonium† solution. The number of cubic centimetres of sulphocyanide solution multiplied by two and subtracted from twenty (the quantity of silver used) gives the entire quantity of chlorides present in one hundred grammes of gastric contents.

(B) Determination of inorganic chlorides: Ten c. c. of well-agitated gastric secretion are evaporated to dryness over a water bath; after evaporation the mass is charred in the direct flame, the charring being kept up until the ash no longer burns with a bright flame. The ash is then extracted with 100 c. c. of hot water and filtered. The entire filtrate is then placed in a beaker, precipitated with 10 c. c. one-tenth silver solution, and titrated with one-tenth sulphocyanide-of-ammonium solution. The calculation of the inorganic chlorides is made by a subtraction of the number of cubic centimetres of sulphocyanide-of-ammonium solution from the number of cubic centimetres of silver solution utilized (10 c. c.). The calculation of hydrochloric acid is made by a subtraction (A—B)—that is, the value obtained for the inorganic chlorides from that of the entire chlorides; this gives the value for HCl in each 10 c. c. of gastric secretion, which, multiplied by 0.0365, gives the per cent. of HCl in 100 c. c. of the gastric contents.

Although this method of Lüttke's is but a few months old, it has not failed to receive severe criticism. Both Ewald‡ and Boas§ have called attention to the fact that no practical advantage is gained by utilizing unfiltered gastric secretion. Ewald believes that the error which Kossler has found for Sjöqvist's method must also be taken into consideration—namely, that by the evaporation with calcium salts and acid potassium phosphate HCl is set free and escapes (calcium salts and phosphates are always to be found in the gastric contents).

*Leo's Method.*—This method rests upon the principle that free acids, such as HCl, are fully neutralized by the addition of calcium carbonate even at low temperatures, while solutions of acid phosphates or other salts of sodium or potassium retain their acidity.

\* A one-tenth normal silver-nitrate solution is one which contains seventeen grains of AgNO<sub>3</sub> to the litre; the indicator ferric sulphate and sulphuric acid must be added.

† A one-tenth normal sulphocyanide-of-ammonium solution is one which contains 7.6 grammes CNSNH<sub>4</sub> to the litre. For special directions for preparing this solution, as well as the silver solution, see Martius and Lüttke, *Die Magenwässer des Menschen*, p. 105.

‡ Ewald. *Berliner klinische Wochenschrift*, Nov. 21, 1892, No. 47, p. 1199.

§ Boas. *Zeitschrift für klinische Medicin*, Bd. xxi, II, 3 u. 4.

|| Leo. Eine neue Methode zur Säurebestimmung im Mageninhalt. *Centralblatt für d. med. Wissenschaft*, 1889, No. 26; and Leo, *Diagnostik der Krankheiten der Verdauungsorgane*, p. 114.

To 10 c. c. gastric filtrate 5 c. c. concentrated calcium-chloride solution are added, and a few drops of a solution of alcoholic phenolphthalein are then titrated with a one-tenth NaOH solution (A). An additional quantity of gastric filtrate (15 c. c.) is precipitated with about one gramme pure powdered CaCO<sub>3</sub>, agitated, and then filtered through a dry filter. Ten c. c. of this filtrate are removed and air passed through\* so as to remove all carbon dioxide. To this 5 c. c. CaCl<sub>2</sub> and a few drops of alcoholic phenolphthalein are added, and the acidity determined by titration with one-tenth normal sodium hydrate (B). A—B corresponds to the free acids; if fatty and lactic acids are not present the result would correspond to HCl; should fatty acids or lactic acid be present in the gastric filtrate, they must first be removed—the fatty acids by distillation, the lactic acid by agitation with ether. Of all the scientific methods, Leo's seems the most accurate and is preferred by Kossler† and Ewald.‡ It must be remembered that none of the methods known give absolute but merely relative values, and that a perfectly reliable method for the determination of free as well as bound HCl is as yet unknown.

BERLIN, March 27, 1893.

## THE MANAGEMENT OF HIP DISEASE.\*

By A. B. JUDSON, M. D.,

ORTHOPEDIC SURGEON TO  
THE OUT-PATIENT DEPARTMENT OF THE NEW YORK HOSPITAL.

PROBABLY from the beginning of surgery hip disease has been the cause of serious and anxious thought to the practitioner. The many and wonderfully various means of treatment in vogue in the past, and especially at present, are sufficient evidence that the subject has been faithfully and ingeniously studied. To my mind, an evidence that real progress has been made in late years is found not so much in new methods of treatment as in a juster appreciation of what can be accomplished by treatment. Of late years we speak of the *management* of hip disease rather than its treatment. Are we not right in agreeing that a case of this insidious and terrible affection is to be *managed* in such a way that the natural cure, which is almost invariably the rule, shall come as speedily and with as little ultimate disability as possible? Would that it were possible, by an incisive and brilliant operation, to cut short the disease and leave symmetry and unimpaired ability! Unfortunately, the hip patient can not be treated and cured as if he had a calculus, or an appendicitis, or an aneurysm. And yet the management of such a case is far from being an instance of expectant treatment. It is a field in which excellent service may be rendered to the sufferer and in which there is abundant opportunity for the exercise of skill and devoted attention.

\* This is best accomplished by passing air through by means of a double-bulbed syringe to one end of which a piece of glass tubing is attached.

† Kossler. *Zeitschrift für physikalische Chemie*, Bd. xvii, p. 107.

‡ In his lectures to physicians, March, 1893.

§ Read before the Fifth District Branch of the New York State Medical Association, Brooklyn, May 23, 1893.

The most obvious thing to do is to relieve the joint from the work of supporting the weight of the body which falls on it in standing and walking. In 1887 Brooklyn lost by death one of her foremost surgeons, a man of sterling character and positive convictions. I refer to Dr. Joseph C. Hutchison. He saw so clearly the necessity of removing this kind of traumatism from the joint that, discarding all other apparatus, he prescribed simply a pair of crutches, with a high sole on the sound foot. What was the effect of this treatment, or management? Obviously to make the affected limb pendent, like the arm, and to remove it entirely from the labor of walking. And that is perhaps the principal function of the hip splint, no matter how elaborately it may be constructed with the design of producing traction, or extension, or abduction, or adduction, or fixation, or motion without friction, or relief from articular pressure, or counteraction of the circumarticular muscles. These various things may or may not be of value at certain stages; but the object sought by the use of crutches and obtained by the hip splint is the relief of the joint from the traumata which attend locomotion. These inflictions cease, of course, when the recumbent position is taken, but by Dr. Hutchison's crutches, or the ischiadic crutch of the hip splint, they are nullified, and yet the patient is up and about. The patient is up while the limb is in bed. A European writer on hip disease exclaims: "But can the body maintain the erect position for months, touching the ground with but one foot? Certainly not. It is not in the range of human possibility." He adds with an access of hope: "The future, however, holds many a surprise. What is to-day impossible may on the morrow be an accomplished fact."\* This was written two years after Dr. Fayette Taylor had described the hip splint,† and to-day we see thousands of children running about for months and years resting on one foot only, and thus giving Nature her best opportunity to resolve inflammation and secure symmetry and locomotor ability, and recovering, some of them, with no deformity and perfect motion in the joint.

A few years ago I compiled from the published reports of the orthopaedic institutions of New York city for a given year a table showing the relative frequency of cases of hip-joint disease and shoulder-joint disease.‡ There were five hundred and sixty-four of the former and only nine of the latter. These figures are suggestive in the extreme. They indicate that the mechanical environment of the hip prevents the resolution of inflammation, while the more favorable situation of the shoulder promotes early resolution. Similar statistics and inferences apply to corresponding affections in the knee and elbow, the ankle, and the wrist. Shall we turn away from a lesson so plainly taught, or ought we not at the earliest moment to make the affected or suspected limb pendent for the weeks, or months, or years required by the nature of the case?

Let us further inquire whether, in the usually tedious course of this affection, something more is not required

beyond protecting the joint. There are periods in which motion, however slight, causes the severest pain. In the words of Sir Charles Bell:\* "It is remarkable how the slightest degree of movement in another part of the body is, as it were, necessarily accompanied with a motion of the surfaces of those bones which compose the hip joint. If ever you should see a patient suffering with acute inflammation of the hip you will see the proof of this, for every motion of the body gives extreme pain, and proves an additional source of excitement and inflammation. It is this consideration which leads us to understand the difficulty of curing the disease." Mr. Henry Hancock, arguing in favor of exsection, gives the following description:† "Look at a patient wasted to a shadow, confined to his bed, not for months only, but for five years, in constant pain and in the last stage of exhaustion from long-continued discharge, his hands employed night and day incessantly maintaining a fixed position of the limb, and endeavoring to prevent the intense agony which occurs on the slightest movement. Often have I seen the poor hip-joint patient, when all others have slept, still wakeful and anxiously engrossed with the one and monotonous task of steadying the knee and preventing movement."

The pictures thus graphically drawn but recall scenes too common in the past and present. Happy those of us who have also seen the ease and comfort and the relief from pain and the assurance of sleep, and in the day time the ability to walk, which are obtained by the gentle traction exerted by the hip splint.

In one of our general hospitals, several years ago, the hip splints which were in use experimentally were not equal in number to the patients in the children's ward who needed them. Therefore it was unfortunately necessary sometimes to remove a splint from a child and apply it to one whose need was greater. It was a cruel necessity, and was always furiously resented by the little one, who had learned by experience that comfort and a greater ability to play had come to him when the splint was applied.

How can we properly estimate the benefit which the management of a case of hip disease in this way secures to the patient? *Locally* we have fixation and protection from trauma, and *generally* we have comfortable sleep and activity out of doors. Can we place the affected bone in a more favorable environment, or better fortify the natural powers to take up and carry on the work of repair, or make a better defense against intercurrent diseases?

There are many details which may well be considered on other occasions. I have tried to make a response to the kind invitation of our secretary by presenting these thoughts of every-day practical interest.

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**Iodozone.**—At the meeting of the *Académie des sciences* on the 21st of March, M. Robin described iodozone, a liquid compound produced by the combination of iodine and ozone. It is a clear, inebucous liquid, void of any irritating properties; a powerful disinfectant; forms a useful application to ulcers, and may be used as a mouth wash.—*Dublin Journal of Medical Science*.

\* *Arch. gén.*, January, 1869, p. 64.

† *Medical Record*, Sept. 1, 1867.

‡ *New York Medical Journal*, June 5, 1886, p. 626.

\* *London Medical Gazette*, Jan. 12, 1828, p. 138.

† *Lancet*, June 1, 1872, p. 620.

# AN AIR AND WATER IRRIGATOR AND DRAIN FOR PROLONGED DOUCHING IN DEEP CAVITIES.

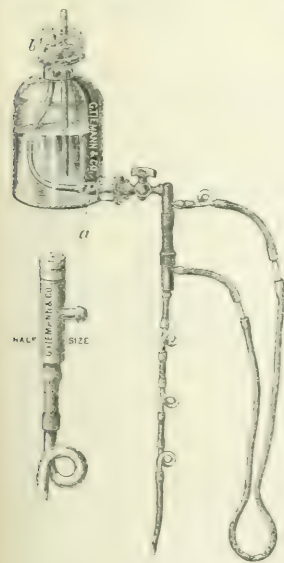
By NATHAN G. BOZEMAN, Ph. B., M. D.

THE author published in the *New York Medical Journal* for June 1, 1889, a description of his new system of continuous vaginal irrigation and drainage. The main features of it are the introduction of sterilized air with the hot water into the vagina and the withdrawal of the same by slight suction before it can accumulate there in sufficient quantities to flow over the perineum and wet the patient's clothing and the bedding. The mixture of air and water in the afferent tube is obtained by means of an intermittent siphon. The suction or rarefaction of air in the efferent tube is produced by a modified filter pump, which has already been described. The system was invented to drain off the escaping urine from artificial vesico-vaginal fistulae, but it is equally applicable for douching in any deep cavity.

The perfected apparatus does not differ in principle from the original. It is simple and inexpensive and acts automatically. The quantity of flow from the reservoir for the irrigation and the production of suction is constant and is regulated by natural laws.

The reservoir is an ordinary glass filter bottle, having any desired capacity. A tightly fitting cork with two perforations is in the neck,

and into the nozzle a tube passes which extends to the neck and communicates there with the air; by its side is another open tube. The fluid escapes from the bottle by the circular aperture at *a*, when the stopcock is open; and the flow is constant, provided the level of the fluid is not below the end of the vertical tube. The quantity of efflux is proportional to the square root of the height between the end of the vertical tube and the circular opening, and is proportional to the area of the latter. Since this aperture is in the wall of a



large empty tube, the algebraic formula for the weight of water,  $W$ , which flows out of the bottle in a given time,  $t$ , is  $W = A a t \sqrt{2gh}$ . Practically, when one fluidounce of water,  $W$ , escapes in one minute,  $t$ , the area,  $A$ , of the circular aperture is 0.003316 square inch (diameter 0.0649 inch), and the height,  $h$ , between the latter and the lower end of the vertical tube is half an inch;  $a$  is the coefficient of

efflux. The reason why the flow from the bottle is constant has been explained by Mariotte, a celebrated French physicist. As the water flows out of the bottle, air enters by the vertical tube bubble by bubble and takes its place.

The suction tube is a series of glass coils suspended in a vertical position; it widens at its upper extremity and is closed by a thin disc with a central perforation. This is shown of half size in the illustration. The water which escapes from the reservoir fills the vertical tube beyond the stopcock up to the nipple in its side. This column of water has a constant level, because as fast as the fluid accumulates above the nipple it flows into the intermittent siphon, and the sudden emptying of this draws air down the tube which passes through the bottle. The height of this column for practical use is two inches, and the area of the circular aperture in the disc upon which it rests is 0.000829 square inch (diameter 0.0325 inch), and half an ounce of water for aspirating purposes flows through it into the suction tube in one minute. It will be seen that this is the half of the entire quantity; the rest supplies the intermittent siphon, and every time it empties itself air which has been sterilized by filtering through the antiseptic gauze wound about the neck of the bottle is drawn into the afferent tube.

For continuous irrigation the bottle is filled with hot sterilized water and placed on a table near the bed of the patient, the end of the suction tube falling into a vessel on the floor. The perforated loop of soft-rubber tubing, stiffened by a wire inside and shaped so as to be self-retaining, is introduced. The stopcock is then opened. The air in the drainage-tube being partially exhausted by the vertically falling water, the intermittent siphon empties itself; then short columns of water separated by air follow one another in quick succession along the drainage-tube, the suction tube, and into the vessel on the floor. The tissues which come in contact with the drainage-tube are bathed in the irrigating fluid, and the secretions are carried off with it. There is no overflow, and the patient's clothes and bedding are kept dry. The apparatus may be obtained from the well-known firm of George Tiemann & Co.

9 WEST THIRTY-FIRST STREET.

## INGROWN TOE NAIL;

ITS SURGICAL TREATMENT.

By WILLIAM R. HOWARD, M. D.,

FORT WORTH, TEXAS.

INGROWN toe nails have long been a source of trouble and annoyance to the surgeon as well as to the patient, and many methods of treatment have been practiced with indifferent success. The causes are many. Trimming the corners of the nail back too close to the fleshy union, hard shoes, too short or too narrow across the toes, too high heels, and congenital soft nails, are the most common causes.

The application of caustic potash to the nail to soften it, and stuffing cotton under the corners, may be successful if done early. Scraping the nail in the center and lifting the corners with an elastic band has been recommended,



and may succeed if done in time. I have used strips of rubber adhesive plaster applied to the flesh at the edge of the nail and passed around beneath the toe diagonally backward, drawing the soft parts away from the nail and treating the corners as above mentioned, with fair success in selected cases. The corners of the nail should be allowed to grow out past the end of the toe, which will always succeed as a remedy, except where the nail is so soft and brittle that it breaks off back to the fleshy union, and this is seldom seen except in the congenital soft nail.

Removal of the entire nail gives only temporary relief, and the trouble returns, usually, tenfold worse than before; for when the nail grows out again it is thick and deformed, often the distal end of the matrix is destroyed, and the nail of sharper incurve than before, both shortening and thickening it.



FIG. 1.

Dr. Cotting published, a few years ago, a method which has met with favor with most surgeons as the best and most satisfactory cure—that of slicing off the side of the toe from the edge of the nail, removing all of the inflamed part, cutting away the whole side of the toe and treating it antiseptically, allowing the wound to cicatrize over the cut surface, the contraction of the cicatrix drawing the soft parts away from the nail.

Another method recommended is to remove the nail and destroy the matrix with caustics; this is unwarrantable in all cases that I have ever seen, and will almost always be unsuccessful, resulting in the return of the nail or parts of the nail, where the matrix has not been destroyed, in the form of little round, hard knots, more troublesome than the ingrown nail, requiring subsequent operations which must be very painful.



FIG. 2.

A method which to me is new, and has only been practiced by myself so far as I know, is simple, rational, and, in my hands in more than a score of cases, has been successful, giving satisfaction in every case. Fig. 1 shows the condition of the toe with ingrown nail, also the cut made for

the operation. Commencing about three sixteenths of an inch from the edge of the nail, passing the knife directly toward the bone, not going deep enough to wound the peri-



FIG. 3.

osteum, make the cut from the center in front, horizontal to the plantar surface, around and back to a line a little beyond the proximal end of the nail; next begin at the same place as before, pass the knife in a semicircular manner, ending with the proximal end of the first cut, removing an elliptical wedge-shaped section by bringing the cuts together at their deepest angle. A piece three eighths of an inch in width is often sufficient to draw the soft parts away from the nail when closed. Bring the edges together with deep silk sutures, as in Fig. 2, dress antiseptically, and immediate union will take place. On the fourth day the sutures may be removed and the wound dressed as in any other case. In from a week to ten days a shoe may be worn with perfect comfort.



FIG. 4.

The operation is rendered nearly bloodless by placing a small rubber band around the toe, which is allowed to remain till the wound is closed. The time taken is less than ten minutes after the patient is thoroughly anesthetized. It may be asked, Why not use cocaine or some local anesthetic? I have noticed that in all cases of plastic surgery where these local anesthetics have been used they have operated against perfect immediate union, upon which the success of the operation so often depends.

This operation may be varied to suit the case; for instance, where both corners are ingrown, or where the nail has been removed and is short and sharply incurved, and allows the end of the toe to rise all around above the nail, as in Fig. 3, the cut should be made around the entire end of the toe (Fig. 4), and a piece sufficiently large removed to bring the nail above the surrounding soft parts (Fig. 5).

Often the second toe overrides the deformed great toe (Fig. 3, dotted lines); in such cases we usually find that the deformity consists in a bag, so to speak, containing fragments of hypertrophied nail which keeps up the irrita-

tion, maintaining an abscess, often encysted, causing hypertrophy of the soft parts. These must be carefully and certainly removed. In all cases endeavor to preserve the matrix, especially along the edges and around the distal end of the nail.



FIG. 5.

There is naturally a great difference in the degrees of firmness of toe nails—some are soft and brittle and will not bear any bending without breaking, while others will bear any amount of manipulation safely. Where we have trouble with these soft nails, the corners usually break off and the soft parts are wont to overlap and cause inflammation

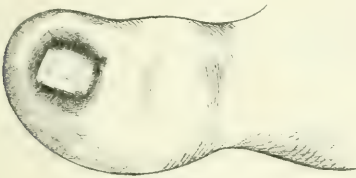


FIG. 6.

around the edges (Fig. 6). When tight shoes with high heels are worn there is very little that can be done to benefit them. An operation which has for its object the removal of the greater part of the toe, making the cut entirely around the end, extending it back nearly to the distal joint, will relieve these cases, if followed by wearing a shoe with broad toe and low flat heel. The application of one part of paraffin and two parts of tallow will tend to toughen the nail and to hold the soft parts away from the nail. Many cases may be relieved by this application alone, properly applied at the onset of the trouble.

## TWO NEW OPERATIONS FOR OBSTRUCTION OF THE NASAL DUCT, WITH PRESERVATION OF THE CANALICULI, AND AN INCIDENTAL DESCRIPTION OF A NEW LACRYMAL PROBE.

By G. W. CALDWELL, M. D.,

LATE RESIDENT SURGEON, NEW AMSTERDAM EYE AND EAR HOSPITAL;  
INSTRUCTOR IN OPHTHALMOLOGY AND  
ASSISTANT IN RHINOLOGY AND LARYNGOLOGY IN THE NEW YORK POLYCLINIC;  
OPHTHALMIC AND ACURAL SURGEON TO  
THE CONVENT AND SCHOOL OF THE SISTERS OF ST. DOMINIC.

WITH the treatment by slitting a canaliculus and slow dilatation with probes, obstruction of the lacrymal duct is notoriously obstinate and painful. It has even been held by a prominent oculist that a perfect cure never occurs, and that in many cases the last condition is worse than the first. Recent studies have demonstrated the existence of circular and triangular muscular fibers about the canaliculi,

which, assisted by the contractions of the orbicularis and the capillarity of the tubes, are sufficient to effect the normal drainage of the conjunctival sac. By slitting the canaliculus this physiological process is supplanted by a simple gravity drain, and drainage is never thereafter quite perfect, even if the nasal duct is dilated to such a size that were it a matter of simple drainage a gallon of tears might flow through in an hour. In health the capillary tubes of the canaliculi are sufficient to carry away the tears, yet if one of them is destroyed by slitting, it is usually thought necessary to dilate the nasal duct to many times its normal size in order to secure any sort of drainage. It is reasonable to suppose that the preservation of normal function of the canaliculi is of far greater importance than an excessive capacity of the nasal duct. While it may be true that a few dry skulls have bony nasal ducts large enough to admit the larger Theobald probes, it is certainly a fact that scarcely any membranous ducts can admit them; and forcing them through, as advised by Theobald, "even if it fractures the bony canal," must be considered barbarous to say the least. That many false passages are made, every oculist who also examines the nose will be ready to admit. Gentleness is imperative in dealing with all membranous canals. This is as true of the lacrymal ducts as of the urethra, although ill treatment may not be so dangerous to life. By bruising a congested nasal duct a functional stricture may be changed into an organic one, and to that extent rough treatment is worse than no treatment. Hemorrhage from the nose should never follow simple probing of the nasal duct. Each time it occurs, another contracting cicatrix is added to the stricture.

Many slight cases of epiphora require only dilatation of the canaliculi up to No. 3 probe, with possibly its passage through the nasal duct from the upper canaliculus without slitting. Usually, however, it is necessary to reach the nasal duct with larger instruments than the canaliculus can admit. In order to avoid the destruction of the canaliculus, which has so important a function in the drainage of the conjunctival sac, and for other reasons which will be apparent, I have operated with very gratifying results in the following manner: A small probe being passed through the upper canaliculus well into the sac and held in position by an assistant, the tissues at the inner canthus are made taut by pressure against the side of the nose, and a small incision is made from the inner extremity of the inner canthus inward and backward directly into the sac upon the probe. A suture should be taken through the wall of the sac and the inner margin of the wound, the ends being left long for traction to facilitate the entrance of instruments into the sac in the subsequent manipulations. The nasal duct may now be explored, and the caliber, length, character, and position of strictures determined by means of the probes which I will describe further on. A stricture being found, it should be divided at once by any narrow probe-pointed knife. If the edge be made rather dull, its service can be better limited to the stricture. Two or three nicks are better than one deeper cut. Dilatation is carried directly up to No. 12 if the duct will admit it with gentle pressure, and the duct irrigated with antiseptic solution, as

boric acid. If the stricture is slight, the sac may be allowed to close at once; if not, the wound should be prevented from closing by the insertion of an obturator made of a fragment of rubber tissue, while the stricture is dilated every three or four days until the wound in the duct has healed, when the sac wound may be freshened and closed by catgut sutures. The operation is done without pain under cocaine, a few minims of a four-per-cent. solution being injected into the point in the inner canthus where the incision is to be made and used freely in the duct. In a few cases, when the inferior turbinate is small and high, it is possible to explore and dilate the nasal duct by way of the lower opening in the inferior meatus of the nose.

The probe referred to above is made according to my design by Tiemann & Co., and consists of a wire staff eleven centimetres in length, with a central plate for convenience in handling. On each end is a bullet-shaped tip one centimetre long, with conical point, parallel sides, and abrupt shoulder. The tips are graded in size, as are Theobald's probes, in successive numbers, each unit of which represents one quarter millimetre of diameter. The shoulders are intended to emphasize the qualities of an obstruction, while the length is sufficient to allow it to be retracted into and held by a stricture for the purpose of dilatation. A complete set comprises seven double-ended probes numbered from 1, the staff alone, to No. 14, the largest size. The advantages which I assert for this probe are that, while for the purpose of dilatation it possesses all the essential properties of Bowman's or Theobald's, it also affords the additional advantage that with it a diagnosis of the location, length (allowance being made for the length of the tip), caliber, and character of an obstruction may be accurately made. The small size of the staff avoids traction at the inner canthus and thereby lessens the pain. The entrance of the probe into the open space between

the inferior turbinate body and the outer wall is immediately indicated by the loss of resistance. It is not, therefore, necessary to carry it to the floor of the nose to be assured it is in the nasal space.

In preparing wet anatomical specimens I have observed that not infrequently the inferior turbinate body rolls upon itself in such a manner as to be in the course of a probe projected through the nasal duct. When we remember that the nasal duct is only a half to three quarters of an inch in length, the reasonable suspicion must arise that this anatomical arrangement may possibly account for some of those "very firm strictures which are occasionally encountered at the lower extremity of the duct," to overcome which probes of such extraordinary strength and

length have been advised. In other cases the antral wall encroaches so far on the nasal space that an ordinary probe in its downward course impinges upon the outer wall at an acute angle, when, if the force is continued, the periosteum is lacerated and pockets formed, which complicate the case. These accidents can hardly occur in the use of this probe, as its escape from the duct is immediately indicated, and we need not be seriously concerned about what the probe may encounter farther down. The accompanying sketch gives a fair representation of the instrument.

In those cases where, in spite of or on account of the long-continued passage of tremendous probes, the duct has become hopelessly closed by fibrous or bony growths, and in fractures, caries, and persistent dacryocystitis, and in all cases in which obliteration of the sac is usually practiced, it will be found that by tapping the nasal duct in the middle meatus the function of the tear duct may be preserved. This is best done by the electric burr after passing a probe into the duct as far as the stricture. The opening should be made at the seat of stricture as indicated by measurements, and enlarged upward as far as necessary. In the two cases of bony closure in which I have employed this operation a complete cure has resulted. The operation is so evidently preferable to ablation or obliteration of the sac that no argument is necessary in its support.

## MUMPS AT FORT APACHE, ARIZONA.

BY CAPTAIN N. S. JARVIS,

ASSISTANT SURGEON, U. S. ARMY.

(Published by authority of the Surgeon General, U. S. Army.)

On the 6th of February of this year Private C. D., Company I, Eleventh Infantry, was admitted to the post hospital at Fort Apache suffering from an uncertain enlargement of the right parotid gland. On careful inquiry it was learned that this Indian soldier had recently visited some of his band at San Carlos, Arizona, where mumps was epidemic. A few days afterward the occurrence of a second and third case left no doubt as to the diagnosis.

Of the forty patients that have been under observation, twenty-eight were members of Company I (Apaches), one a white mountain scout, one a negro ex-soldier, and ten white men from Companies F and H, Eleventh Infantry, and Troop D, First Cavalry.

For about a month the disease confined itself to the Indian company, showing that in overcrowded and poorly ventilated barracks the contagion has a fertile field for its extension. The first white soldier attacked was a nurse. The disease then gradually spread to the other organizations. The small percentage of whites affected indicated probable immunity by a previous attack; and as the Apaches had hitherto led more of an open-air existence, they had probably escaped the disease until domiciled in crowded barracks. Both parotids were affected in seventeen cases, the right only in eleven, the left only in twelve cases, thus barely maintaining the predilection in favor of the left parotid. The testicles were attacked in thirteen cases (33·3 per cent.)—the left in three; the right in seven:





both in three; the right, as usual, in the larger percentage of cases. Of these thirteen cases, atrophy resulted in three instances (7.5 per cent.)—in the right, one; in the left, two. It is probable, however, that other instances of atrophy may be added to this list when time has elapsed to permit the gland to contract. The cases in which atrophy occurred were by no means the most severe as to general symptoms or local manifestations. Two patients without orchitic complications had for several days a temperature ranging from 102° to 105° F., with considerable prostration, stupor, abdominal pain, and some constitutional depression. In the majority of those in whom orchitis supervened an interval of from two to five days elapsed, the metastatic complication being ushered in by chill, headache, fever, and tenderness of the gland. In one case no parotid enlargement had been observed. The swollen testicle presented a characteristic feel upon examination. In the majority of instances it was hard and tense, the tunica albuginea apparently offering an unyielding wall against the more elastic and oedematous contents of the sac. Immediately above and back of the body of the gland was a small mass hard to the touch, of about the size and shape of a marble, situated at the anatomical site of the globus major; it seemed completely isolated from the testicle proper. I have seen many cases of orchitis from various causes, acute and chronic indurations of the gland and epididymis, but in no other variety of testicular inflammation have I observed this peculiar type of swelling. Symptoms of cerebral hyperæmia, such as tinnitus aurium, photophobia, epistaxis, and vomiting, were not infrequent. Oedema and congestion of the pharynx was another complication, and in one case oedema and obstruction of the nasal mucous membrane. The average Apache Indian, when swollen with the mumps, is by no means a prepossessing spectacle, and I regret now that I did not photograph some of the more typical patients.

The treatment in the majority of cases consisted at first in free purgation with magnesia or Seidlitz powders, and then in the use of antipyretics, with sedatives when indicated, and local applications of lead and opium to the swollen parotids. My chief source of anxiety was the testicular complication and its possible result—atrophy. To avoid this, patients were closely confined and cautioned against exposure to cold. That the intense oedema held down by the rigid tunica albuginea has much to do with subsequent contraction I am confident. In some cases where rapid subsidence does not follow the usual methods of treatment, I think that puncturing the gland with needles at several points, under proper antiseptic precautions, would reduce the inflammation quickly and lessen the risk of subsequent atrophy. I found that considerable relief of pain followed the use of a poultice of flaxseed and tobacco; but the oedema did not subside under this treatment, and, although many practitioners prefer a stereotyped course of warm poultices or fomentations, the question arises as to whether heat should not be employed with some caution in view of its tendency to increase oedema.

Considering such severe symptoms as I have reported, the possibility of atrophy of the testicle, the loss of

service, and expense to the Government, I feel confirmed in the opinion that a case of mumps in a garrison demands isolation and every effort to prevent further spread. Moreover, the disease has wide limits in its intensity, and we can never predict, when it appears, what type it may assume. Von Ziemssen mentions an epidemic in a French garrison in which twenty-three cases of orchitis with subsequent atrophy resulted in eighty-seven affected soldiers (twenty-six per cent.).

## A CASE OF CHRONIC DEAFNESS

CAUSED BY ADENOID VEGETATIONS IN THE NASOPHARYNX

By W. H. BATES, M.D.,

ASSISTANT SURGEON, NEW YORK EYE AND EAR INFIRMARY.

THE patient was very deaf with that form of middle-ear catarrh which is not usually benefited by treatment. The case is interesting on account of the great improvement in the hearing which followed after the adenoid vegetations were removed.

On January 14, 1893, Mr. M., aged twenty-nine, presented himself for treatment. With the right ear he can not hear loud conversation; neither the watch nor a loud-ticking clock can be heard when pressed against the ear; the tuning fork is heard better by bone conduction than by air conduction. With the left ear he can hear loud conversation at four feet; the watch is heard  $\frac{1}{2}$ ; the tuning fork is heard equally well by bone or air conduction. Inflation with the Politzer air bag is easy and the hearing is not improved in either ear. The patient has no tinnitus aurium.

He gave the history of progressive hardness of hearing for more than four years. His mother and a brother are also deaf. He has been treated by inflation for three months, and his hearing was worse after the treatment. A number of competent otologists in Philadelphia and New York have examined him and told him that he could not be benefited by treatment. The patient states that his hearing is usually worse when he has a cold in his head. At present there is no nasopharyngeal catarrh. The nose appears perfectly normal. The adenoid tissue in the vault of the pharynx does not interfere with nasal breathing. There are adhesions of the Eustachian tubes to the vault of pharynx. The patient complains of some difficulty in swallowing.

The removal of the adenoid tissue in the nasopharynx was accomplished with great difficulty. The patient's throat was very sensitive. At first the tongue depressor was sufficient to excite gagging. The rhinoscopic examination was made after many failures. The throat became quite tolerant after a few days, and this result was brought about by the perseverance of the patient, who introduced his finger frequently into his throat until gagging seldom occurred. During the operations for the removal of the adenoids no cocaine was used, because the patient said that he felt no pain from the cutting. The removal of tissue from the center of the vault was followed by slight improvement in the hearing. The removal of tissue from above and behind the Eustachian tubes was followed by the greatest improvement in the hearing. It was only possible to reach the locality of the Eustachian tubes when the patient relaxed his throat completely; the forceps had to be forced upward and outward and strongly pressed backward against the bone in order to cut through the hypertrophied tissue in this region. The quantity of tissue removed was more than half a cubic inch. The forceps was introduced into the vault behind the

palate more than fifty times, and frequently it could not remove any of the tissue on account of the gagging, which forced it to the median line. The patient was not exhausted by the great number of operations. Not all of the adenoid vegetations were removed.

*January 22d.*—The patient hears right watch  $\frac{2}{3}$ , left watch  $\frac{1}{3}$ . With both ears open he appears to hear ordinary conversation at more than twenty feet. He hears whispered words behind his back at more than ten feet.

The patient left the city for his home.

*February 16th.*—He writes that his hearing has remained good.

131 WEST FIFTY-SIXTH STREET.

## WOUND OF THE HEART: DEATH AT THE END OF THREE DAYS.

By ASHTON B. HEYL, M. D.,

LIEUTENANT AND ASSISTANT SURGEON, U. S. ARMY, FORT NIHOHARA, NEBRASKA.

(Published by authority of the Surgeon General.)

ABOUT noon, March 19, 1893, Private E. P. W. was stabbed with a pocketknife over the upper margin of the fifth rib in the fourth interspace, the knife penetrating the chest wall three inches to the left of the median line and three quarters of an inch below and slightly to the right of the left nipple. At first shock was profound, there being scarcely any pulse at the wrist. As soon as received at the hospital he began to vomit, and also had involuntary evacuations from the rectum. A hypodermic of ether was given, under which he soon recovered sufficiently to be conscious and answer questions. The wound was not explored, but simply occluded. His condition seemed to improve up to the day before death, when the temperature rose to 102.5°, and he complained for the first time of pain in the left lung and dyspnoea. He was unable to retain food; alcoholic stimulants were given at intervals to combat impending cardiac failure. On the morning before death a pleuritic friction râle was heard over the left lung near the apex, rapidly increasing until it spread over the whole lung. A few moments before death he requested that his head be lowered. At this time the heart's action was so weakened that there was no pulse at the wrist. He died at 2:16 P. M., March 22, 1893.

*Post-mortem examination twenty-four hours after death:* External wound as above stated. Upon opening the chest cavity there was an escape of sero-sanguinolent liquid from the pericardium, which presumably had been held in by the surrounding tissues, for as soon as the chest wall was lifted the fluid poured through the puncture made in the pericardium. There were evidences of plastic pericarditis and of pleuritis. The heart had the appearance of having been macerated in the liquid, so shrunken was the external muscular structure. The puncture extended not more than an eighth of an inch into the heart muscle, at a point corresponding to the rhaphe between the ventricles and one third the distance from the apex to the base. The puncture in the pericardium was larger than the external wound, probably due to stretching by the heart's action or by pressure from the liquid within. The whole of the left lung was oedematous and the pleural sac was filled with fluid similar to that in the pericardium. The interior of the pericardial sac was covered with plastic exudation, as was also the pleural sac, which latter showed adhesions to the chest walls.

The Death of Dr. Johann Schnitzler, of Vienna, is announced in the *Internationale klinische Rundschau* for May 7th.

## THE VALUE OF GALVANIC ELECTRICITY APPLIED WITHIN THE RECTUM.

By JOHN V. SHOEMAKER, A. M., M. D.,

PHILADELPHIA.

In a host of morbid processes characterized by deviations from the normal nutritive type, electricity is the most powerful remedial agent at our command. It is also in many cases the most rapidly efficient. The physical, physiological, and therapeutical effects of this force demand, therefore, the closest study. The action of the different forms of electricity and the modes in which they are applied are subjects upon which we should seek to enlarge our knowledge and obtain precision of opinion.

Electricity exerts a remarkably stimulating influence upon the functions of the nervous system. Consecutive to this effect it benefits the muscular and glandular tissues, the action of which depends so closely upon the condition of the nerves by which they are animated. Both voluntary and involuntary muscles are invigorated. A languid circulation is strengthened, and cellular nutrition is therefore directly and indirectly improved. Muscular vigor is increased, secretory processes become more active, digestion and absorption are therefore promoted, and the work of elimination is facilitated. The general absorbent system is also stimulated, and inflammatory products are removed under the influence of this agent.

For all these reasons electricity is peculiarly adapted to the treatment of a wide range of disorders. All those dependent upon or associated with anomalies of secretion, feebleness of the circulation, or depressed nutrition are efficaciously treated by means of electricity. On account of its effects upon arterioles, capillary and absorbent vessels, it is likewise valuable in chronic inflammations. In every sphere of medical art conditions occur which will receive their most effective treatment by means of electricity.

Atony of the unstriated muscular fibers of the intestine and bladder is particularly liable to occur. Neglectful habits as regards diet, manner of eating, carelessness as regards the punctual evacuation of the bowels, engender a habit of constipation which has a natural tendency to become worse with advancing years. The intestinal secretions diminish; peristaltic action is sluggish; a mass of hard, dry excrementitious material constantly occupies the lower portion of the colon; the wall of the gut, accustomed to be kept on the stretch, loses its elasticity and grows lax. Its propulsive force is absolutely lessened. Cause and effect act and interact upon each other to perpetuate the morbid condition.

This habitual retention of refuse material within the large intestine can not be otherwise than detrimental to the general health. Waste products are eliminated by the glandular system of the bowel, microbes are constantly present, toxic products are absorbed, the blood is vitiated, and general nutrition suffers. A condition is finally induced which Sir Andrew Clarke has described as "fæcal anæmia." The obstruction of the rectal circulation results in the formation of internal and external hæmorrhoids, with their concomitant disadvantages. Chronic constipation produces

headache, dullness of mind, depression of spirit, palpitation of the heart, and languor of body.

Atony of the bladder is brought about by distention. Unavoidable circumstances may sometimes prevent evacuation of the urine and lead to its accumulation within the bladder. This stretching of the muscular coat of the organ is deleterious, and may lay the foundation of persistent atony. Such a cause is far more frequently operative in females, whose delicacy will often prevent a prompt obedience to the calls of Nature. In the vast majority of cases, however, a weakened bladder is in men consecutive to obstruction to the exit of urine by reason of an enlarged prostate or old urethral stricture. The vesiculæ seminales also sometimes become enlarged in consequence of gonorrhoeal infection. A chronic inflammation of the prostatic urethra excites prostatorrhœa, spermatorrhœa, and sexual incapacity, together with a long train of bodily and mental ills dependent upon an abnormal condition of the generative apparatus. In all these cases electricity is an admirable remedial agent.

I have long been in the habit of treating these disorders by means of the continuous current applied within the rectum. The intrarectal rheophore, attached to the negative pole, is introduced within the bowel, while the sponge-covered rheophore representing the positive pole is adjusted by the patient upon the perineum. The constant current passes directly through the prostate gland. The patient is able to exactly graduate the intensity of the current by means of more or less pressure upon the rheophore. The strength of the current should be about that of one milliamperé, rather less than more, and the patient is at first unconscious of its passage. Gradually, however, he perceives the rectal electrode becoming heated to a point at which it can be comfortably borne. I think that the slow and steady increase in the strength of the current, sometimes from one to ten or twelve milliamperés, is of value in producing the result. It was in the course of treating prostatic disease in this manner that I discovered the rapid laxative effect of the galvanic current. The secretion from the mucous membrane is stimulated, as well as peristaltic

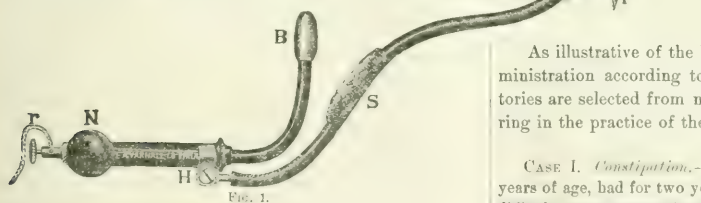


FIG. 1.

action. In the course of a few minutes the patient experiences the desire to go to stool. In describing\* the use of the galvanic current as a laxative, I expressed the opinion that the application might, by repetition, be made to have constitutional effects in the relief or removal of chronic constipation. This surmise has been amply confirmed by the results of subsequent experience, and I am able to cite

as examples cases which have been entirely cured by galvanism applied in the manner indicated. The procedure has been so simplified that it can with the greatest ease be practiced by the subject of any of the affections which I have named. The "prostatic electrolyzer" consists of a rectal rheophore corresponding to the negative pole. The rectal limb of the instrument has a movement in the vertical plane, and in adjusting is pressed downward toward the sponge-covered moistened pole. The olive-shaped bulb

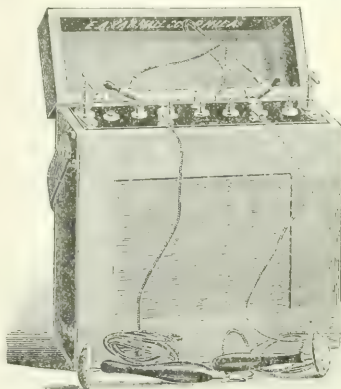


FIG. 2.

pole having been oiled, the instrument is passed under the perineum. The front handle is allowed to fall away; the bulb is passed into the rectum. The sponge-covered positive pole, which works upon a hinge, is then placed upon the perineum. This instrument is now made by the E. A. Yarnall Company, of Philadelphia,

in such a form that it can be attached to a small, portable, inexpensive battery. The outfit can be advantageously employed by those persons who may be, for various reasons, unable to place themselves under the continued supervision of a physician.

As illustrative of the benefits which accrue from the administration according to this method, the following histories are selected from many others of similar kind occurring in the practice of the writer:

**CASE I. Constipation.**—An unmarried man, twenty-seven years of age, had for two years suffered from indigestion. The difficulty was consecutive to what the patient denominated as "inflammation of the bowels." The symptoms were flatulence, water-brash, pain in the epigastrium, palpitation of the heart, and eructations. He was likewise afflicted with constipation and internal hæmorrhoids. The action of the heart was rapid but regular, and there were no adventitious sounds. To complicate the case the man had been excessively addicted to masturbation, and was troubled with spermatorrhœa. The application of galvanism very speedily overcame the constipation. The change was not merely temporary but continued. The digestive functions gradually improved, and finally the morbid and ex-

\* *Medical Bulletin*, 1890, pp. 198 and 275.



cessive seminal losses were restrained. Eventually the man was discharged entirely cured.

CASE II.—A woman, fifty-nine years of age, had been dyspeptic for years, but her symptoms had for several preceding months been aggravated. She was subject to heartburn, flatulence, and eructations. She often suffered from a feeling of nausea, although she seldom vomited. She had lately been troubled by sensations of faintness coming on after meals. She never swooned, however, nor did she become dizzy. Her diet and habits were regulated, and she was given some tonics and digestive ferments. This internal medication was regarded as entirely subsidiary to the course of galvanism which was immediately instituted. She improved again. The constipation vanished, and was followed by the other evidences of imperfect digestion. The appetite grew keen, the lady gained in weight and strength, and reported herself as feeling better than she had for ten years. When dismissed she thought that her digestive powers were as good as they had ever been.

CASE III.—A man, aged twenty-seven years, was subject to sick headaches. He vomited and retched, and after an attack was destitute of appetite. His bowels were always constipated.

This patient did not need much treatment. His bowels became regular after a few *séances*, and while he was under observation he was free from headache. As the patient has not reported for a year or more, the presumption is that the improvement has been permanent.

CASE IV.—A woman, fifty-five years of age, suffered from flatulent distention of the abdomen, nausea, and sometimes vomiting, irrespective of the food taken. She would not infrequently retch violently when nothing had been recently eaten. She suffered also from headache, but not from vertigo. She had but little appetite. Her bowels were habitually constipated, but twice during the preceding six months she had had a pseudo-dysenteric attack, attended by rather frequent passages of mucus, sometimes mixed with blood, the illness being unmarked by chill or fever. There was no œdema. The lady never had fainting fits, and although she was somewhat short of breath, she had not been especially troubled with dyspnea. She suffered also from considerable pain in the abdomen and had lost some flesh. She had never vomited blood, there was no abdominal tumor, she was not an alcoholic subject, and there was no albumin in the urine. The normal area of hepatic dullness was unchanged. The symptoms had first made their appearance several years ago, but had been increasing in severity during the preceding year. The patient had never had syphilis.

Notwithstanding the rather suspicious nature of the history, amendment, though not so rapid as in some of the other cases, gradually progressed until the patient regarded herself as entirely cured. At the end of about three months appetite, digestion, and bowels were in perfect activity, and the mental condition had correspondingly improved. Whereas she had been listless, peevish, and despondent, her spirits rose, and she was again able to extract some enjoyment from life. Antispasmodic powders with powdered charcoal were sometimes administered to this patient in the beginning of the treatment, and certainly afforded a certain amount of relief. That they did not, however, influence the cause of her malady was evidenced by the fact that they had been previously employed with only temporary benefit, and that, as she began to improve under the use of galvanism, the powders were altogether abandoned.

CASE V.—A woman, twenty-three years of age, had lately been annoyed by flatulence after eating and pain in the stomach. Her appetite was poor and her bowels habitually consti-

pated. There was no nausea or vomiting. She often had headache, and had lost flesh and color. Her menses had always been regular until within the last period, when an interval of only two weeks elapsed. She had had some leucorrhœa of late. The effects of treatment need not be given in detail. Suffice it to say that in six weeks' time this patient went home with a good appetite, excellent digestion, and regular bowels. The leucorrhœa also had disappeared. She had appreciably gained in flesh, and her complexion had lost its dull pallor and exhibited a more healthy hue.

CASE VI.—A woman, forty-seven years of age, housekeeper, had for six months experienced great distress after eating. Her principal troubles were extreme flatulence and palpitation of the heart. The flatulence appeared very soon after eating and continued for several hours—often as many as six or eight. The palpitation occurred at irregular times, and was often present, but not every day. She had no colicky pains, but there was generally a feeling of soreness over the stomach on pressure. The gaseous distention chiefly concerned the stomach, which became enormously swollen and outlined in the epigastrium and hypochondriac region. Some hours after a meal the swelling usually descended to the lower abdominal regions. There was no evidence of hepatic disturbance. She had never been of a "bilious" habit. Her bowels were, and long had been, extremely constipated. She seldom had nausea and never vomited. She did suffer from headache or vertigo, but had fallen into the habit of brooding, and was very melancholy and nervous. She did not sleep well on account of her nervousness. She occasionally had sour stomach. She had not much appetite for the morning or evening meal, but had a taste for a midday dinner, although she almost dreaded to eat because she suffered so much from indigestion. She was not able to determine that her symptoms depended especially upon any particular kind of food. She lived upon a mixed diet, but had abandoned the use of fried food, pastry, and coffee. This patient led a very monotonous indoor life.

In the management of this case pepsin was given for a while in order to assist digestion, and the galvanic current was used within the rectum for the relief of the constipation. The result was all that could be desired. The bowels became active and the various symptoms of indigestion ameliorated after a few applications. In comparison with the chronicity of the case the improvement was remarkably rapid. The patient was discharged at the end of three months. The bowels were then moving regularly once in the twenty-four hours, which previous to the treatment they had not done for a number of years. The woman had regained her natural spirits, no longer sat brooding alone all day, but was pleased to make and receive neighborly calls.

CASE VII.—A woman, aged fifty years, had mild dyspeptic symptoms, but had a dirty tongue, had dull headache much of the time, and often experienced a sense of suffocation. Her bowels were very sluggish and hard to move by the aid of purgative medicine. She had been in this condition for many years. She was soon cured solely by the use of galvanism applied in the manner described.

CASE VIII.—A man, aged fifty-eight years, who suffered from extreme flatulence and constipation, was entirely relieved by the same plan of treatment.

CASE IX.—A young girl, aged eighteen years, who had long been subject to frequent attacks of headache and vertigo, had an irregular and capricious appetite with a very weak digestion. There was a good deal of flatulence after eating, and from time to time she experienced exacerbations of dyspepsia, upon which occasions the vertigo was always aggravated. The girl was very constipated.

The constipation was soon relieved and the digestion benefited by applications of galvanism. The attacks of pain in the head and dizziness became less frequent and less severe.

CASE X. *Internal Hemorrhoids*.—A man, aged thirty-five years, had been troubled with piles for fifteen months. They had caused him more or less annoyance, but had not given rise to much suffering until within the preceding month. For two days past they had been paining him exceedingly, so that he had no comfort in any position and could not sleep well at night. At times they had bled, occasionally quite freely. The bleeding always gave him temporary relief. Examination showed several large protruding masses surrounding the margin of the anus, of a purple color and very sensitive. He was able to return them himself, but they would not remain in position. The man was ordered to remain in bed for two days, and an ointment composed of tannic acid and stramonium was kept applied. The pain was by this means alleviated and the tumors reduced in size. I then began to use the constant current. The treatment at first caused some pain, but this grew less at each repetition and the tumors demonstrably lessened in size, until at the end of a month they could no longer be detected.

CASE XI.—A woman, aged fifty years, had for years been subject to constipation and also to occasional protrusion of piles. The latter had not given her much pain or trouble until within the preceding week. Occasionally, at long intervals, they would relieve themselves by bleeding, after which they became smaller and ceased to protrude or cause pain.

One week before she came to me they again began to protrude in consequence of straining at stool. Although at times the tumors were not so large as at others, yet they had remained down all the time. They caused her excessive pain, restlessness, nervousness, and sleeplessness. The patient lost appetite, had nausea, and sometimes vomited. The bowels were obstinately constipated. The pain was of a throbbing character and very severe, compelling her to assume many different positions, although she obtained no decided relief from any change. The pain seemed equally intense whether she was sitting, standing, or lying. The tumors had not bled any during this attack.

Upon examination, I found at the anus a large mass of about the size of a pigeon's egg, composed of an aggregation of several tumors. They were very much swollen, extremely sensitive to the lightest touch, and seemed to be on the verge of strangulation, being oedematous in some spots and of a livid hue in other places. The base was firmly constricted by the external sphincter ani. The mucous membrane was highly injected though not eroded. The patient had tried to replace the tumors, but had not succeeded. As it would have been almost impossible to return them without the aid of an anæsthetic, I ordered an ointment of cocaine hydrochloride together with a purgative. After the bowels had been well opened, a few doses of morphine were administered at intervals in order to control the pain. Two days later the piles were considerably smaller, less vascular, and decidedly less tender upon pressure. The bowels operated without pain, she was able to sleep without the aid of morphine, and her appetite was beginning to improve. Ten days after I first saw her I was able to insert the rectal pole and begin a course of galvanism. The hæmorrhoidal tumors steadily diminished in size. The treatment created no pain, evacuations from the bowels became regular, and the patient was finally discharged cured.

CASE XII.—A woman, aged fifty-five years, had suffered from internal hæmorrhoids for more than five years. They had occasioned great pain, tenesmus, and prolapse of the rectum. At times they had bled. They were very much inflamed, the mucous membrane was abraded in spots, and a fissure of the

anus had formed. After a preliminary treatment similar to that of the preceding case, galvanism was made use of with the same happy result.

CASE XIII.—A woman, aged twenty years, had suffered from hæmorrhoids ever since a confinement eight months previously. They had gradually grown worse and had become very painful. They protruded and bled. Her bowels were habitually constipated. The constant current effected a complete cure.

CASE XIV.—A man, aged twenty-eight years, had been for three or four days passing blood at stool. He did not suffer pain then or at any other time. He was the subject of chronic constipation. About a year previously he had been troubled with piles, but they did not bleed and disappeared without treatment. Examination revealed a small bunch of hæmorrhoids protruding when he strained, and a small quantity of blood escaped at the same time from the anal orifice. Digital exploration detected a protuberance of the mucous membrane, just above the internal sphincter, on the anterior surface of the gut and somewhat tender to pressure. This man suffered from palpitation due to a "tobacco heart." The cardiac action was irregular. Galvanism checked the hæmorrhage, caused the tumors to shrink, and also corrected the irregularity of the heart. He was directed to abstain from the use of tobacco.

CASE XV. *Relaxation of the Sphincter Vesicæ*.—A woman, aged forty-five years, complained that for two or three years past, whenever she coughed, sneezed, vomited, or by any strain brought the abdominal muscles into play, or whenever she was jarred, as in descending from a step, a gush of urine escaped. This had become so great a trouble to her that she was constantly kept wet and chafed. She had a very irritable stomach and had a cough much of the time. She suffered from headache, dizziness, and dimness of vision on suddenly rising. She was habitually constipated. The lips and tongue were pale. The patient had within the period mentioned lost a great deal of flesh. There were no symptoms of cystitis. There was a small external hæmorrhoid. Neither nephritis nor tuberculosis existed. The galvanic current was passed in *vaginam* and the sphincter of the bladder gradually recovered its tone. Constipation vanished.

In chronic affections of the prostate gland galvanism, applied according to the method detailed in this paper, affords more satisfactory results than any other plan of treatment. I wish to allude, in the first place, to the gradual hypertrophy of the gland, which is so frequently observed in persons of advancing years. The obstinacy of this affection to every form of medical or surgical treatment is due to the histological character of the growth. We are not concerned here with a mere organization of inflammatory products or proliferation of interstitial connective tissue, but with an actual increase in the normal constituents of the organ. The prostate is composed of unstriated muscular fibers inclosing true gland cells. In senile hypertrophy we find an increase of both the muscular and cellular elements. Hence the difficulty in effecting any reduction of size. I am able, however, from abundant experience, to assert that the constant current is able to accomplish exactly what is desired—viz., to limit the new production of tissue and to bring about a diminution in the size of the organ. Surgical intervention has proved of no avail in this condition. We now possess in galvanic electricity the only efficient means of reducing an hypertrophied prostate approximately to its normal size. Were the current

restricted in its therapeutic efficiency to this single rôle, it would be impossible to overestimate its effect upon human life and happiness. The slow but sure progress of hypertrophy of the prostate is accompanied by ills which make life a burden long before the patient is released by death from his sufferings. At first the obstruction to the urethral channel simply renders the act of micturition somewhat laborious and ineffectual. Imperfect evacuation necessitates more frequent acts of urination. The difficulty progressively increases, and after a time it is very difficult to empty the bladder. The latter organ hypertrophies. Its mucous membrane becomes the seat of inflammation. The urine then alters in character; it becomes alkaline in reaction, turbid, and mixed with ropy mucus. It readily undergoes decomposition, not infrequently even before it is passed. Recourse must eventually be had to the catheter. The thickened bladder becomes atonic. Obstruction in front, loss of propulsive power behind, an inflamed bladder, an acid urine—all co-operate to produce a most distressing condition. Hemorrhoids and prolapse of the rectum are common sequelæ, and finally the ureters and kidneys become involved. This frightful train of consequences may be averted by the institution as early as possible of judicious treatment.

CASE XVI.—A man, aged sixty-six years, came to me in great distress about eleven o'clock one night, complaining that he could not pass water. He had urinated last at 6 p. m., had drunk several glasses of beer during the evening, and, upon preparing to go to bed, found himself unable to void his urine. He soon began to suffer pain from the retention, became alarmed and very nervous. This was the first occasion when he had been incapable of relieving his bladder. A catheter was passed and about two quarts of urine withdrawn. Digital examination *per rectum* revealed hypertrophy of the prostate.

This was a favorable case for treatment. The enlargement was moderate in extent; it had not previously given rise to noteworthy symptoms; the urine was clear; the general condition good. At my advice the man placed himself under systematic treatment. He had no recurrence of retention, the tumor gradually diminished in volume until it was scarcely appreciable, and the patient considered himself entirely cured. The relief has been permanent to the present time—a period of more than two years.

CASE XVII.—A man, aged sixty years, exemplified a more advanced stage of the affection. He had for two or three years been conscious of increasing difficulty in the act of micturition. He was obliged to strain a good deal when he endeavored to pass urine; he experienced the desire quite frequently and was generally forced to rise two or three times during the night. At times he suffered from pains at the head of the penis and smarting sensations along the course of the urethra. The urine contained some mucus, but was free from the ropy, viscid sediment characteristic of chronic cystitis. Treatment by means of the prostatic electrolyzer was followed by notable amelioration of the symptoms. The act of evacuation became less difficult and less frequent, he was freed from the necessity of rising at night, the uneasy sensations in the urethra vanished, and digital exploration assured me that the gland had been reduced almost to its normal size.

CASE XVIII.—The case of a man aged seventy-four years excellently illustrates the final period with consecutive renal disease. The history of his difficulty ran back for ten years.

The steps by which it had progressed need not be rehearsed. When I first saw him he had long been dependent upon the catheter. The urine was alkaline and contained much ropy mucus. It emitted a decided ammoniacal odor. He suffered from an uneasy sensation of fullness in the rectum, his general health had sensibly declined, he was weak and obliged to remain in bed a good part of his time. There was great hypertrophy of the prostate, involving both lateral and the middle lobe. The case was unpromising, but, in addition to remedies adapted to alleviate the cystitis, I resolved to make use of galvanism in the hope that it might render urination less difficult. The effect was better than I expected. The desire to pass water became less frequent, the patient obtained more rest, his general condition improved, and the character of the urine changed for the better. The mucus became decidedly less abundant and lost its ammoniacal odor. It was too late to effect a decided reduction of the enlarged gland, and indeed the kidneys had become diseased. The galvanic current, however, mitigated the old man's sufferings, rendered his last year of life less intolerable, and, I am satisfied, prolonged his existence for some months.

*Prostatorrhœa, Spermatorrhœa, Impotence.*—If enlarged prostate renders life a burden to the aged, disease of the prostatic urethra, its symptoms and consequences, destroys the happiness of the young and middle-aged. The mental effects in this class of cases are even more serious than the physical ills. A most wretched state of mind is engendered. The patients have generally abused themselves in youth, and an exaggerated estimate of the damage which the practice is capable of producing, together with a spirit of self-accusation or remorse, renders life miserable. Various reflex nervous phenomena are also observed in these patients. Medicinal treatment is of comparatively little avail. Distention of the prostatic urethra by large-sized steel sounds is a serviceable procedure, but I have found the intrarectal use of the constant current even more beneficial. I will cite a few cases in which this method proved effectual.

CASE XIX.—A youth, nineteen years of age, had masturbated from the age of fourteen, and had not yet succeeded in freeing himself from the habit. For some time past, however, he had endeavored to do so and seldom deliberately indulged in the practice. But he was troubled, and had been for some years, with involuntary nocturnal emissions. Going to bed without thought of indulgence, or at least with a determination to abstain, he had, at some time during the night, an erotic dream and awoke to find himself handling his penis. An emission then took place or was provoked. Occasionally an emission would take place without awakening him, and he only learned of the fact by observing a stain upon the bed-clothing. Nocturnal pollutions occurred, on an average, about once a week. On the following day he felt languid and had backache. He had no pain over the abdominal rings or in the testicles. He suffered at such times from a dull frontal headache. He had no urethral or prostatic discharge. He had never colabited. The lad's general health was good, his appetite was fair, and his bowels were regular. He had not noticed any irregularity as regards urination. Examination demonstrated that the prostatic urethra was noticeably sensitive. The patient was completely cured within three months. He persevered in his efforts to abstain from self-abuse. The abnormal sensibility of the urethra lessened and finally disappeared; erotic dreams and nocturnal emissions became less frequent and ceased to be followed by languor or pain.



CASE XX.—An unusually robust man, aged twenty-five years, was greatly troubled in mind by frequent erotic dreams and emissions. He had long been a masturbator, although he averred that he had abandoned the practice. This patient had a very shy and self-conscious air, and was very anxious that his sexual functions should be restored, as he was desirous to marry. Seminal losses occurred once or twice a week and left some feeling of weakness on the following day. He had backache, but there were no prominent reflex phenomena. Here again I found the prostatic urethra tender. The individual made a rapid recovery, married, lost his morbid fears, and in the course of a year begot a child.

CASE XXI.—A well-developed man, aged thirty-two years, had for five years been affected with premature ejaculations in coition. The difficulty was growing worse. He had originally been of a strongly amorous disposition, and indulged freely in social intercourse. He had, however, become so afflicted that he scarcely more than effected entrance before ejaculation occurred. The patient had consequently become apprehensive of his sexual capacity. He had no pain in the back, testicles, or head; no form of neuralgia; had a good appetite and digestion. The man seldom suffered from an involuntary nocturnal emission. He ascribed his trouble to an attack of gonorrhœa. His sexual vigor had never since been the same. A redundant prepuce was retrenched. After the wound had healed he was subjected to a galvanic course and soon regained his original sexual vigor.

There is still another difficulty in which I found this method of applying the galvanic current within the rectum of advantage. I refer to inflammation of the seminal vesicle, or gonocystitis. This is an affection of which very little is said in the text-books. No doubt it is of rare occurrence, and yet, judging by my own experience, it is more common than is generally supposed. At any rate, I meet from time to time with such a case as the following:

CASE XXII.—A man, twenty-four years of age, six months previously had acquired gonorrhœa. No unusual manifestations were presented until in the third week, when the urethral discharge was declining. The patient then began to suffer from pain situated low down in the rectum. The pain was intensified when the bowels were moved. Urination was difficult. The symptoms had subsided, but had never entirely disappeared. He still suffered at times from pain in the rectum and, occasionally, from painful erections. A slight urethral discharge had also lingered. Spermatozoa could be detected in the discharge when examined under the microscope. Upon exploring the rectum, I found an oval swelling behind the prostate gland which was unaltered. The tumor corresponded to the position of the right seminal vesicle. It was hard, of irregular outline, and somewhat sensitive to pressure. Under the influence of galvanism the tenderness gradually diminished and the swelling was reduced in size.

This lesion usually occurs upon one side only, but exceptionally both vesiculæ seminales are involved. In the acute stage it gives rise to severe suffering, and at times to nocturnal emissions containing a mixture of semen, pus, and blood.

I have in this paper limited myself to an enumeration of the advantages derived from the use of galvanism applied within the rectum by means of a special instrument. I have consequently avoided reference to the value of electricity in the treatment of urethral stricture. The effect of the current upon the caliber of the rectum I have described in former papers to which I have made allusion.

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THE TREATMENT OF MYXŒDEMA.

THE *Edinburgh Medical Journal* for May contains a paper on the use, during the past two years, of thyroid extract in myxœdema and allied conditions, by Dr. Robert A. Lundie. From 1878, when Dr. Ord made his original contribution to the subject of myxœdema, to 1891, there had been only palliative treatment brought to light in respect to that disease. A careful regard for the patient's personal hygiene, massage, a change of environment, or a milder climate had been known to benefit a few patients; others had improved slightly and transiently under the use of such drugs as jaborandi, nitroglycerin, arsenic, and strychnine. In Dr. Ord's article on this disease, written for Quain's *Dictionary of Medicine* about ten years ago, that author stated that not much hope of improvement could be predicated of drugs; he said: "The progress of the disease is not readily affected by any remedy, and the prognosis is altogether unfavorable." Now, however, thanks to the plan of treatment instituted in 1891 by Dr. G. R. Murray, of Newcastle, England, and confirmed by others in the same year and in 1892, there are few abnormal conditions that are so certainly ameliorated by treatment. Dr. Murray's plan consisted in the subcutaneous injection of a sterilized extract of the thyroid of the sheep. Two glands and a half were used in the first case, in the space of three months; afterward he used a manufactured glycerin-extract in doses averaging twenty-five minims every two weeks. In later cases the same physician has used the extract in doses of from twelve to twenty-five minims weekly, also in daily doses of ten minims when they are taken by the mouth. In cases where thyrus extract was used, the reported results were far from being satisfactory.

The subcutaneous method of treatment continued in vogue during the greater part of 1892, and was followed by most gratifying improvement in nearly every instance. Dr. Lundie presents a tabular statement of thirty-two cases thus treated during 1892, and of only two of these it is stated that no improvement occurred. As these two exceptional cases occurred in the practice of the same physician, there is room for a belief that the size of the dose or the method of procedure was at fault. Of the results that have been recorded as favorable we find a wide range in regard to the extent of the improvement; one patient is reported "practically cured," another "immensely improved, another, a maniac, "improved both physically and mentally," another "slightly improved." One patient recovered *pari passu* from myxœdema and from melancholia; and another patient having a severe nephritis improved decidedly in that respect as well as in the more serious malady. Dr.

Byrom Bramwell has seen amenorrhœa and albuminuria disappear quite early in the course of thyroid feeding; but in cases of myxœdema occurring in elderly people, where the albumin is present in consequence of an associated cirrhosis of the kidney, the albuminuric symptom may not be expected to clear up in the same manner as in younger patients. One of Dr. Duntlop's cases, reported in the same journal that contains Dr. Lundie's paper, was remarkable as an example of myxœdema following a recovery from goitre, with atrophy of the thyroid gland as a consequence of that recovery. This was a case of myxœdema having a more distinct organic origin than is ordinarily the case. It is true that there is wasting of the gland as the malady progresses, but it seems to be a feature of development rather than of origin, as in this instance. The recovery in this case was so marked that the reporter writes: "This case is a good example of the rapidity with which improvement takes place, all the symptoms having yielded to treatment in a couple of months."

The administration of thyroid gland by the mouth was begun by three or more physicians, independently of one another, in different towns and countries nearly simultaneously, in the latter part of 1892. The gland was variously used—raw, cooked (parboiled or fried), extracted in glycerin, and in the form of a dry powdered extract. These methods of preparation have all been found about equally efficacious, except when too much heat has been applied in the process of cooking the gland; from which it seems probable that the physiological constituent of the gland that is potent against myxœdema is destroyed by heat.

The thyroid of the sheep has generally been used, but that of other animals, such as kine, calves, and swine, has also been used with good results. Care must be taken that the glands are in a healthy state, since it has been pointed out by Dr. Napier, in the *Lancet*, that not more than half the thyroids of sheep are free from abnormal changes. The preparation known as Brady and Martin's extract was employed in eleven of the forty-six cases included in Dr. Lundie's tables, and also in five other cases not included in those tables, but reported in the same number of the *Edinburgh Medical Journal*. Solid extracts have been used by Dr. Arthur Davies, Dr. Vermehren, and others. Mr. Edmund White, of St. Thomas's Hospital, has prepared a powder of thyroid of which the dose is three grains, equivalent to one eighth of a gland; and an enterprising London manufacturer has quite recently introduced tabloids of compressed dry gland-powder, each tabloid containing five grains of healthy sheep's thyroid. It is stated that Mr. White's powder has been found efficient in several cases of myxœdema.

Deterioration or tendency to relapse is, as a rule, noted after a few weeks, if the thyroid feeding is suspended; which is another way of saying that the treatment is not competent to remove the morbid tendency, but is efficient to counteract it artificially. And Dr. Lundie suggests that a smaller initial dosage may, in the future, be found to yield more permanent results, at the expense of a brilliant initial improvement. In more than one case the ill effects of an overdose of extract were made

promptly manifest in cardiac depression, pain in the head and other parts, nausea, or profuse perspiration. Two of Dr. Murray's patient's died from cardiac syncope; but, as they were both persons of advanced age and feeble and as no autopsy was held, there is considerable doubt as to how far the treatment contributed to the unexpected termination. Dr. Byrom Bramwell has pointed out that, in cases of old persons whose arteries are atheromatous and whose heart-muscle has degenerated, the thyroid feeding should be conducted with very great care and the remedy given in very minute doses until the effect has been accurately measured and recorded in regard to each individual. Dr. Lundie, at the outset of all thyroid treatments, warns the patient of the risk attendant upon sudden or unusual exertion.

In the same number of the *Edinburgh Medical Journal* a case that was fatal soon after the beginning of a thyroid treatment for myxœdema is reported by Dr. John Thomson, together with a full description of the necropsy. The case is an important one, but it can not be clearly adduced as one of fatal result due to thyroid administration. It teaches caution, however, in the employment of the hitherto despised gland. There appear to be no recorded results in case of persons in good health.

Another paper in the same journal, by Dr. John Thomson, recites the clinical history of a case of sporadic cretinism treated by thyroid feeding. That the results in this case were remarkable is shown by this one fact: The patient, a lad aged eighteen, was at the beginning of the treatment thirty-three inches and a half in height; at the end of two weeks of treatment the height had increased two inches, whereas in the fourteen years preceding the stature had increased little if at all. This growth has been only one of several indications of the marked benefit of the treatment. The history of the case should be consulted for the full details.

In the same number of the *Edinburgh Medical Journal* there are, in all, six papers bearing on thyroid treatment and the two diseases, myxœdema and sporadic cretinism. They were brought out at or in connection with a discussion of thyroid feeding, before the Medico-chirurgical Society of Edinburgh, at meetings held on two successive evenings in February last. The names of the physicians who took part in that discussion are Dr. Byrom Bramwell, Dr. R. A. Lundie, Dr. Melville Duntlop, Dr. John Thomson, Dr. W. W. Ireland, Dr. W. S. Greenfield, Dr. Clouston, and Dr. Stalker. The latter speaker stated, in regard to the apparent increase of myxœdema in recent years, that he knew of not fewer than twenty-one cases of that disease in the comparatively small town of Dundee. Dr. George Murray, of Newcastle, the now famed inaugurator of the thyroid hypodermic method, was also present by invitation and advocated the use of small daily doses and the systematic enforcement of quiet during the early stages of the treatment. It was a frequent remark by the participants in the discussion that exophthalmic goitre was not materially relieved by thyroid feeding.

## MINOR PARAGRAPHS.

### THE EXTERNAL USE OF GUAIACOL IN PYREXIA.

According to the *Medical Week* for April 14th, Dr. S. Sciolla has reported that the application of from thirty minims to two drachms and a half of tincture of guaiacol to the skin of the abdomen, back, chest, or extremities is followed by the rapid absorption of that remedy and by its antipyretic effect in all febrile diseases. Its action is accelerated when the part to which it is applied is enveloped in gauze covered with gutta percha tissue. Defervescence is often accompanied by profuse perspiration, but there is no cyanosis or other alarming manifestation. Administered in this way, guaiacol is eliminated by the kidneys in the form of guaiaco-sulphuric ether, that appears in the urine about an hour after the skin has been painted. The application may be repeated several times in the twenty-four hours.

### THE HITCHCOCK MEMORIAL HOSPITAL.

THE Hanover, N. H., town authorities have received the gift of a new hospital from Mr. Hiram Hitchcock, of New York. It is a pavilion institution of four buildings. The exterior of the buildings is of Pompeian brick with terra cotta ornamentation. The domed roofs have red Spanish tiles, and vitrified tiles are largely used for the ceilings and floors of the wards. The intent of the donor has been to erect a memorial to his late wife and to establish a means of clinical instruction for the medical students who pursue their studies at the Dartmouth College medical department. The presentation ceremonies took place on May 3d.

### IODIZED COLLODION IN THE TREATMENT OF TINEA TONSURANS.

At the fourth annual meeting of the French Society of Dermatology and Syphilography, according to the report published in the *Revue générale de médecine, de chirurgie et d'obstétrique*, Dr. Butte extolled the value of iodized collodion in tinea tonsurans. He employs a solution of forty-eight parts of seventy-five-per-cent. alcohol and three parts of iodine, with the addition of a hundred and forty parts of collodion, six parts of Venice turpentine, and twelve parts of castor oil. Two or three coatings are applied daily for three or four days. A fortnight later the coating is removed and the patch is washed with a one-to-five-hundred solution of corrosive sublimate.

### THE HARVARD MEDICAL SCHOOL ASSOCIATION.

The fourth number of the *Bulletin of the Harvard Medical School Association*, dated May, 1893, fully sustains the promise given in the earlier numbers. In a prefatory note it is stated that whether or not the *Bulletin* becomes a regular publication will depend entirely upon the reception that it meets with among the graduates of the school, for whose information in regard to certain new methods of teaching that have arisen in various departments of the school it is designed. It is to be expected that their *esprit de corps* will lead them to favor it with conditions conducive to its permanency.

### UNNECESSARY OOPHORECTOMIES.

At the recent annual meeting of the Georgia State Medical Association, as reported in the *Journal of the American Medical Association*, Dr. McIlhatton, of Macon, read a paper entitled *Four Women who refused Oophorectomy, and their Subsequent Histories*. He declared that in a practice of twelve years

he had had occasion to recommend the removal of the uterine appendages once, leaving out of account cases of ovarian tumor, and that case had proved to be one of pyosalpinx. Several of his patients had drifted into other hands and had oophorectomy performed, but, so far as he could learn, they had all been disappointed in the result.

### THE INFLUENCE OF THE GENERAL HEALTH ON THE CURABILITY OF PITIRIASIS VERSICOLOR.

In a statistical review of the cases of skin disease observed at the clinic of the Bordeaux Faculty of Medicine during the years 1889 to 1892, by Professor Arnozan, published in the March number of the *Archives cliniques de Bordeaux*, the author remarks upon the rebelliousness of pityriasis versicolor, notwithstanding the superficial habitat of the parasite. He thinks it must be that a good deal depends upon the nature of the soil on which it effects a lodgment. Particularly, he mentions tuberculosis and dyspepsia as playing a considerable part.

### THE NEW YORK JOURNAL OF GYNÆCOLOGY AND OBSTETRICS.

THIS journal, edited by Dr. J. D. Emmet and Dr. A. H. Buckmaster, is evidently winning its way to the favor of the profession. The May number opens with an interesting article by Dr. Thomas Addis Emmet, entitled *Reminiscences of the Founders of the Woman's Hospital Association*, illustrated with portraits of the late Dr. J. Marion Sims, the late Dr. Valentine Mott, the late Dr. Francis Delafield, Mrs. Doremus, the late Dr. Alexander H. Stevens, the late Dr. John W. Francis, the late Dr. Horace Green, and the venerable nurse, Margaret Brennan.

### ISOLATION HOSPITALS.

THE need of these institutions is one that we have often and urgently insisted on. It has lately been illustrated in Philadelphia by the case of a child affected with diphtheria who was denied admission into the Children's Hospital. In consequence, as we learn from the *Medical News*, the hospital has incurred newspaper censure—unmerited, because the child's admission, even temporarily until the Municipal Hospital ambulance could be obtained, would have been contrary to positive orders from the board of health.

### A FUND FOR THE LATE DR. LAURENCE JOHNSON'S CHILDREN.

WE are glad to learn that an effort is being made to raise by subscriptions on the part of the medical profession in New York a fund for the benefit of the young children left orphans by the death of Dr. Johnson and that of Mrs. Johnson. Dr. Johnson will be remembered as untiring in his efforts to advance the interests of the profession, and we look to see a substantial recognition of the value of his labors in the shape of handsome subscriptions to the fund.

### THIOSINAMINE IN LUPUS.

THE *Lancet* for May 6th makes brief mention of Dr. H. von Hebra's experience in the employment of allylsulphocarbamide, or thiosinamine, as a remedy for lupus. It is administered subcutaneously, and produces a local but not a general reaction. Under its influence the cicatricial tissues are said to soften and become pliable, enlarged glands to become reduced, and corneal opacities to clear up.



## ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 23, 1893:

DISEASES.	Week ending May 16		Week ending May 23	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	21	3	9	6
Typhoid fever.....	9	6	15	3
Scarlet fever.....	206	18	159	15
Cerebro-spinal meningitis.....	23	17	23	14
Measles.....	187	5	143	4
Diphtheria.....	122	29	97	59
Small-pox.....	8	5	9	1

**The American Surgical Association.**—The annual meeting will be held in Buffalo, in the new Alumni Hall of the Medical Department of the University of Buffalo, on Tuesday, Wednesday, and Thursday, May 30th and 31st and June 1st, under the presidency of Dr. Nicholas Senn, of Chicago, besides whose address, on A New Method of Direct Fixation of Fragments in Compound and Ununited Fractures (to be discussed by Dr. Roswell Park, Dr. F. S. Dennis, and Dr. De Forrest Willard), the programme announces an address of welcome, by Dr. Matthew D. Mann, of Buffalo, and the following papers:

Pneumotomy for the Removal of a Horseshoe Nail from the Right Lung of a Child, by Dr. W. T. Briggs, of Nashville; Hypertrophies and Degenerations of Cicatrices and Cicatricial Tissue, by Dr. J. Collins Warren, of Boston (discussion by Dr. C. H. Mastin, Dr. G. R. Fowler, and Dr. W. H. Carmalt); The Surgery of the Gall-bladder, by Dr. M. H. Richardson, of Boston (discussion by Dr. J. Ewing Mears, Dr. A. Vander Veer, Dr. W. H. Carmalt, and Dr. T. A. McGraw); The Surgical Treatment of Cervical, Thoracic, and Abdominal Aneurysm, by Dr. C. B. Nancrede, of Ann Arbor; The Surgery of the Rectum, by Dr. A. G. Gerster, of New York (discussion by Dr. L. S. Pilcher, Dr. H. H. Mudd, and Dr. L. McLane Tiffany); The Surgery of the Prostate, by Dr. J. William White, of Philadelphia (discussion by Dr. Hunter McGuire, Dr. T. F. Frewitt, Dr. R. F. Weir, and Dr. F. H. Gerrish); And The Treatment of Caruncule, by Dr. F. Lange, of New York (discussion by Dr. Robert Abbe, Dr. J. B. Roberts, and Dr. J. S. Wight).

In addition to these, the following papers are volunteered and will be read, as opportunity offers, at the end of each day's programme:

Unreduced Dislocations of the Astragalus, by Dr. Stephen Smith, of New York; Clinical Reports (Two Cases of Primary Sarcom of the Tonsil, with Operation; Cases of Operation upon Meckel's and the Gas-serian Ganglia; Malignant Polyp springing from the Base of the Skull—Attempt to make the Operation Bloodless after Senn's Suggestion), by Dr. Roswell Park, of Buffalo; and The Importance of the Colon Bacillus to the General Surgeon, by Dr. Roswell Park.

**The late Dr. Charles Carroll Lee.**—The Medical Society of the County of New York has adopted the following preambles and resolutions:

*Whereas*, It has pleased Divine Providence in its inscrutable wisdom to take from us in the prime of his manhood and the fullness of his usefulness, our colleague, the president of this society; and

*Whereas*, We, the officers and fellows of the Medical Society of the County of New York, desire to place upon record our estimate of the character of our deceased brother, be it

*Resolved*, That in the death of Charles Carroll Lee this society has lost a devoted, able, and faithful officer, whose earnestness of purpose and loftiness of motive peculiarly fitted him for the office which he adorned.

*Resolved*, That the loss which we thus mourn is by no means limited to our society, our city, or even our country. Wherever the profession of medicine is to-day practiced as a science, there will the death of Lee be recognized as a misfortune; there will the silence of his voice and the stillness of his pen arouse a sorrow responsive to our own.

*Resolved*, That to his family, in this bitter hour of bereavement and sorrow, we most respectfully and sincerely extend our heartfelt sym-

thy, wishing for them that consolation which is the legitimate outcome of the contemplation of his noble life and the bright record which he leaves behind him.

*Resolved*, That a draft of these resolutions be spread upon the minutes of this society, that duplicates be sent to the medical and daily press of this city, and that a copy be transmitted to the family of our deceased friend.

**The Chicago College of Physicians and Surgeons.**—In order to encourage graduates of literary and scientific schools to undertake the study of medicine, the College of Physicians and Surgeons offers ten scholarships, each of which is valued at \$100 a year for three years, to such applicants as present evidence of the best qualifications for medical study.

**The New York Academy of Medicine.**—The programme for this week's meeting of the Section in Obstetrics and Gynaecology, on Thursday evening, included a paper on Hematoma of the Vulva, by Dr. G. P. Murray, and one on Urinalysis in Gynaecology, by Dr. Howard A. Kelly, of Baltimore.

**The New York Post-graduate Medical School.**—At a meeting of the board of directors held on May 17th, Dr. A. Palmer Dudley was elected professor of diseases of women, Dr. George M. Edebohl professor of diseases of women, and Dr. George T. Elliot professor of diseases of the skin. Dr. J. West Roosevelt has resigned his position as professor of clinical medicine.

**The American Gynaecological Society.**—At the recent annual meeting, held in Philadelphia on the 16th, 17th, and 18th inst., officers for the ensuing year were elected as follows: President, Dr. William T. Lusk, of New York; vice-presidents, Dr. Samuel C. Busey, of Washington, and Dr. Bache McE. Emmet, of New York; secretary, Dr. Henry C. Coe, of New York; treasurer, Dr. Matthew D. Mann, of Buffalo. It was decided to hold the next meeting in Washington, in May, 1894.

**The New York Dermatological Society.**—At the annual meeting, held on Tuesday, the 23d inst., officers for the ensuing year were elected as follows: President, Dr. Charles W. Allen; secretary and treasurer, Dr. Hermann G. Klotz; other members of the executive committee, Dr. George T. Elliot, Dr. John A. Fordyce, and Dr. S. Lustgarten.

**The Medical Department of Tulane University.**—The veteran teacher, Dr. Joseph Jones, has been relieved from clinical duty after twenty-six years of this service. His chair will hereafter be that of chemistry and medical jurisprudence. Dr. Albert B. Miles has been inducted into the chair of surgery, as successor to the late Dr. Samuel Logan. Dr. L. F. Renaud succeeds Dr. Miles in the branch of materia medica and therapeutics.

**The New York State Quarantine.**—Certain improvements in the station recently provided for include a three-story house for detained immigrants, which, it is said, is to be built within sixty days. In addition, the piers at Hoffman Island are to be enlarged and the disinfecting appliances improved.

**St. Mary's Hospital, Brooklyn.**—It is announced that the twenty-fifth anniversary of the establishment of the hospital will be celebrated by a garden party on the 6th, 7th, and 8th of June.

**Army Intelligence.**—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 7 to May 20, 1893:

Taylor, Blair D., Captain and Assistant Surgeon, will report in person to Lieutenant-Colonel Dallas Bache, Deputy Surgeon General, president of the examining board convened at Omaha, Neb., at such time as he may be required by the board for examination as to his fitness for promotion.

A board of officers—to consist of ALEXANDER, CHARLES T., Colonel and Assistant Surgeon General; STERNBERG, GEORGE M., Lieutenant Colonel and Deputy Surgeon General; and HOFF, JOHN VAN R., Major and Surgeon—is appointed to meet, at the call of the president thereof, at New York city for the examination of such officers as may be ordered before it, with a view to determining their fitness for promotion.

PRICE, CURTIS E., Captain and Assistant Surgeon, is ordered to report in person to the president of the examining board at New York city for examination for promotion.

BENHAM, ROBERT B., Captain and Assistant Surgeon, is, by direction of the Secretary of War, granted leave of absence for six months on account of sickness.

JOHNSON, RICHARD W., Captain and Assistant Surgeon, is relieved from duty at Fort Bowie, Arizona, and ordered to duty at Washington Barracks, D. C.

WAKEMAN, WILLIAM J., Captain and Assistant Surgeon, is relieved from duty at Fort Bidwell, California, and ordered to Fort Thomas, Kentucky, for duty.

MCXN, CURTIS E., Major and Surgeon, is hereby granted leave of absence for twenty days, to commence about May 24, 1893.

MCRAW, WALTER D., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect June 1, 1893.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon, is relieved from duty at the Presidio of San Francisco, Cal., and ordered to Columbus Barracks, Ohio, for duty.

WILCOX, CHARLES, First Lieutenant and Assistant Surgeon, is relieved from temporary duty at Angel Island, California, and ordered to the Presidio of San Francisco, Cal., for duty.

SPECER, WILLIAM G., Captain and Assistant Surgeon. The leave of absence granted on surgeon's certificate of disability is extended four months on account of disability.

WORTHINGTON, JAMES C., Captain and Assistant Surgeon, ordered to report in person to Colonel Charles T. Alexander, Assistant Surgeon General, president of the examining board, appointed to meet at New York city, N. Y., at such time as he may be required by the board, for examination as to his fitness for promotion.

HORTON, SAMUEL M., Major and Surgeon, San Diego Barracks, Cal., is granted leave of absence for one month on surgeon's certificate of disability.

#### Promotion.

MIDDLETON, JOHNSON V. D., Major and Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel, May 8, 1893.

#### Casualty.

McCLELLAN, ELY, Lieutenant Colonel and Deputy Surgeon General, died May 8, 1893, at Chicago, Ill.

#### Appointments.

To be Assistant Surgeons with the rank of First Lieutenant, May 12, 1893: STARK, ALEXANDER N., of Virginia; LYNCH, CHARLES, of New York; KULE, JOHN S., of Pennsylvania; MCXSON, EDWARD L., of Connecticut; FLAGG, CHARLES E. B., of South Carolina; KENNEDY, JAMES M., of South Carolina; GODFREY, GUY C. M., of Ohio; LEWIS, WILLIAM F., of North Carolina.

#### Society Meetings for the Coming Week:

TUESDAY, May 30th: Medical Societies of the Counties of Queens (annual)—Mineola and Rockland (annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, May 31st: Medical Society of the County of Monroe (annual)—Rochester, N. Y.; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

THURSDAY, June 1st: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, June 2d: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, June 3d: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

#### Answers to Correspondents:

No. 407.—"Inflammation of the bowels" is a popular term for peritonitis.

No. 408.—We have no knowledge of the person or of the alleged transaction.

## Letters to the Editor.

### THE CHICAGO POST-GRADUATE MEDICAL SCHOOL.

KANSAS CITY, Mo., May 13, 1893.

To the Editor of the *New York Medical Journal*:

SIR: In the announcement of the summer course of lectures at the Chicago Post-graduate Medical School by Mr. Lawson Tait, of Birmingham, Mr. Reginald Harrison, of London, Professor Schauta, of Vienna, Dr. Price, of Philadelphia, and others, by an unfortunate mistake of the printer's I am placed as a resident of New York, and my subject is not mentioned. The topics discussed by myself will be embraced in the title *Some Achievements in Intracranial Surgery*, and my remarks will be based almost entirely upon my personal experience, which in number and variety of cases is more extensive than that of any other American surgeon. Inasmuch as this work has been done in Kansas City, may I not ask you to kindly make a note of correction as to my field of labor? EMORY LANPHEAR, M. D.

### NEWSPAPER MEDICINE.

NEW YORK, May 22, 1893.

To the Editor of the *New York Medical Journal*:

SIR: My attention has only to-day been called to a letter published in your esteemed journal of the date of April 1st quoting an item from a newspaper in regard to a patient under my care. The anonymous author of this letter, "San Grado" he signs himself, after commenting in a sarcastic manner upon the case and after quoting some ridiculous statements of the newspaper reporter in which my name is used, remarks in conclusion, "Comment seems unnecessary."

Well, it seems to me that several comments are necessary.

If San Grado's idea is to inveigh against "newspaper medicine," I heartily agree with him, but no one can read his letter without perceiving that a personal reflection is intended. If otherwise, why does he not sign his name to the letter?

I desire to say, in the first place, that I never saw the newspaper slip quoted prior to reading it in your journal, nor am I in any sense directly or indirectly responsible for it, nor have I been instrumental in its appearance. I have steadfastly refused to be interviewed time and time again about this patient, as well as about others of public fame. I am not therefore responsible for the statements made, as most certainly would appear from San Grado's letter.

An anonymous letter in a public journal can seldom be other than a despicable thing, especially when it contains innuendoes against persons. If San Grado has any charges to make against me, I invite him to come out openly into the arena of your pages and make them, rather than conceal himself behind a fictitious signature.

W. J. MORTON, M. D.

### A FROG IN THE STOMACH.

CYPRESS RIVER, MANITOBA, May 12, 1893.

To the Editor of the *New York Medical Journal*:

SIR: A case of more than ordinary interest came under my observation in this place. A Mr. Ruston, farmer, aged about sixty, was engaged one day in September, 1891, in bringing water to a thrashing-machine engine. The water was taken from a slough and, the day being warm, Mr. R. drank freely of it. That night he was taken ill. Day by day he continued getting worse. He had a peculiar, indescribable feeling in the region of the stomach. This feeling would at times be followed

by a sensation of "a lump rising in his throat and choking him." After some time he called in a medical man, who told him that he did not understand his ailment, and that he thought nothing could be done for him. Then a second doctor was sent for. After his second visit he diagnosed it as cancer of the liver. A third doctor was called in later. He found the liver enlarged, but did not think that would account for the patient's condition. After some time he told the patient he could do nothing for him. At this time he was so low that no one expected he could recover. But about the 1st of March, 1892, he began to rally, and ere long was able to move around, though up to this date he has not been strong enough to do any work.

In November, 1892, I was called to see him. At this time he had an attack of acute bronchitis. While making an examination I discovered that, in addition to his other ailment, he had cardiac trouble. After recovering from the attack of bronchitis he went to visit his old home in Ontario. While there he was taken very ill. Two doctors attended him, both of whom told him that he had serious heart trouble. On his return home in March last he sent for me. At that time he complained of both the gastric and the cardiac affections. I directed my treatment mainly to the heart at first. He improved considerably, but still was unable to work. His gastric trouble still remained. During the first days of this month he suffered more than usual. On the 8th he "felt as if he were going to die." During one of those choking spasms he made a strong attempt to clear his throat of the "lump." He was more than usually successful, for along with other things came a lively little frog. Its body is about an inch and a quarter to an inch and a half long. At first it was of a pale, gelatinous appearance, but now it has quite a natural color. On hearing of it I drove to see for myself if the report was really true, and I had the pleasure of seeing His Frogship. Mr. R. keeps it in a bottle containing a little water, and says that he will not part with it for any money. He feels decidedly more comfortable since he ejected his "little boarder."

R. W. MACCHARLES, M. D., C. M.

#### PRIORITY IN THE TREATMENT OF SPRAINED ANKLE.

717 ELEVENTH STREET, N. W., WASHINGTON, D. C.

May 16, 1893.

To the Editor of the *New York Medical Journal*:

SIR: Your current editorial on The Treatment of Sprained Ankle is both timely and valuable, for in my experience sprains are more serious in their ultimate results than fractures.

And, while concurring in the main with the statements made by Dr. V. P. Gibney, yet I am not prepared to admit that Mr. Cotterell's method of treatment is entirely new. Twenty-five years ago, when a student at the Medical Department of the University of Louisville, I well remember that Professor D. W. Yandell, one of the best all-round teachers of surgery in America and a perfect master of the bandage, taught us the identical principles now claimed as of English origin. Moreover, in the early seventies, the late Dr. R. O. Cowling, of Louisville, Ky., contributed several valuable articles to the *American Practitioner* on the treatment of fractures and sprains, advocating the use of manilla paper, etc., as a dressing, and substantially recommending the same line of treatment taught by Dr. D. W. Yandell. Furthermore, while I was attending Bellevue Hospital Medical College in 1877, it is my impression that Professor Lewis A. Sayre treated sprained ankles with adhesive-plaster dressings and secured admirable results. The greatest master of the bandage in his day and generation was Dr. Benjamin Dudley, of Lexington, Ky., and his legatee, in this respect, is Dr. D. W. Yandell, of the same State.

WILLIAM E. BRANDT, M. D., Ph. D.

#### PRENATAL MEASLES.

SALISBURY, Mo., May 9, 1893.

To the Editor of the *New York Medical Journal*:

SIR: An item was clipped from the *New York Medical Journal* by one of our Western journals recently in regard to a case of prenatal measles reported at a meeting of the Edinburgh Obstetrical Society.

By notice being given in such a high place I presume such cases rarely occur, which is my apology for reporting to you a case which came under my care. The mother, while suffering with measles, was delivered of an eight-months child which had the eruption fully established all over it from head to foot. I have never reported the case to any journal, as I thought there was nothing unusual about it in times of epidemic.

F. B. PHILPOTT, M. D.

#### NEWSPAPER ACCOUNTS OF DEATHS FROM ETHER.

ALBANY, N. Y., May 19, 1893.

To the Editor of the *New York Medical Journal*:

SIR: My attention has just been called to an article in the *Medical News* for April 29th, and in your *Journal* of May 6, 1893, which has given me much annoyance, and I hasten to make some reply. I certainly never made any such statement as is attributed to me. I have too much confidence in Dr. McBurney to in any way doubt his treatment of Col. Shepard's case. Beyond a doubt everything was done that was possible in the case, and done well and properly.

DWIGHT A. LAWRENCE.

#### Book Notices.

*Human Anatomy. A Complete Systematic Treatise by Various Authors, including a Special Section on Surgical and Topographical Anatomy.* Edited by HENRY MORRIS, M. A. and M. B. Lond., Surgeon to and Lecturer on Surgery, formerly Lecturer on Anatomy at the Middlesex Hospital, etc. Illustrated by 791 Woodcuts, 214 of which are printed in Colors from Drawings made expressly for this Work by Special Artists. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xxxiii-17 to 1286. [Price, \$7.50.]

THE past few years have been prolific in the production of treatises on human anatomy. In England, Macalister has brought out an excellent manual and Quain's *Anatomy* has been almost wholly rewritten. In Germany, Gegenbaur's masterly treatise has run rapidly through five editions, Rauber has rewritten Hoffmann's work, Toldt has rewritten Langer, Stieda has rewritten Pansch, and an excellent compendium of topographical anatomy has been issued by Gerlach, while more extensive works in the same department have been undertaken by Joessel and Merkel. In France, Testut has undertaken a treatise in three volumes illustrated in the most elaborate manner, Debieuvre has given another in two volumes, and Poirier has just begun two works—one descriptive, the other topographical. In this country the Nestor of American anatomists, Dr. Leidy—now, alas! no more—has revised and rewritten his manual; Dr. Harrison Allen has written a large work, and Dr. McClellan has produced a finely illustrated topographical anatomy.

The reason for this unprecedented activity is found not so



much in new discoveries, though these have been many and important, as in the general feeling on the part of anatomists that the older books are faulty in plan and that something better can be devised. The great impulse given to biological sciences by the epoch-making theory of evolution has profoundly influenced all anatomical studies, and this, though not always expressed, has given rise to a discontent with the treatises that satisfied the preceding generation.

The present magnificent volume is the latest attempt to meet the modern requirements. It is a compilation contributed by various authors, each an acknowledged authority in his branch, under the editorship of an anatomist who has already had some experience as a writer. His work on the *Anatomy of the Joints*, published some years ago, forms the basis for the section which he now contributes to this volume. The illustrations are many and various, a considerable number of them being new, and all of them executed with such care and fidelity as to make an exceedingly attractive and showy volume. The external appearance and typographical execution of the book are admirable. From the publishers' point of view it leaves little to be desired. Under such auspices it is not strange that in some respects it is a decided improvement over any treatise yet published. The section on Osteology, by J. Bland Sutton, F. R. C. S., and that on the Organs of Digestion, by Frederick Treves, F. R. C. S., are especially to be commended. We have nowhere seen a more satisfactory account of the development of the peritoneum than is given in the latter article.

Many deficiencies are, however, to be noted. Every anatomist will find some and will rate them according to his own estimate of the scope of the science. It would seem, for example, that in a comprehensive work like this space could have been found for a succinct account of the varieties of human crania and of craniological terms and methods. No one who has followed our recent advances in the knowledge of joints is likely to be satisfied with Morris's too meager classification, and still less will the scientific myologist favor the retention of the worn-out nomenclature of muscles of the back, now abandoned by all continental authorities. Had Dr. Walsham seen his way to a scientific discussion of the causes of variation in the vascular system he would have assisted the student greatly.

These may be thought to be but minor matters; unfortunately, they arise from the peculiar attitude taken by the editor toward his work, an attitude which we can but think seriously cripples its value as an exposition of existing anatomical knowledge. In the preface he says: "Histology and development—except the mode and dates of the development of the bones, and in a few other instances—are not included, as it is felt that these subjects are more appropriately dealt with in books on physiology than they can conveniently be in works on anatomy." Truly this is a most surprising statement to be made in these days when the departments referred to are considered as the corner-stones of proper scientific anatomy. It is much as if a treatise on chemistry should confine itself to describing the sensible properties of substances, referring all questions of atomic constitution and chemical theory to some other branch; or as if a treatise on geology should confine itself to a description of the actual relations of strata, without considering either their constitution or how they came to be deposited.

This capital fault obscures greatly what is otherwise a very valuable work. For want of the clews which histology and embryology might give, the student must often wander in a hopeless maze. This is very notable in the section on the nervous system, contributed by the able hand of H. St. John Brooks, demonstrator of anatomy to the Dublin University. Not one word is said here of the marvelous discoveries of recent times relating to the structure and relations of the nerve cells, and

hardly anything about the nerve tracts found in the brain and spinal cord. We might almost believe that anatomy had retreated to the time of Gall, when the brain was supposed to be composed of a series of conical "organs" having their apices at the medulla and their bases at the periphery. When we consider that the Dublin University is one of the most active anatomical centers in Europe, and that the anatomy of the brain has received special attention there under the able guidance of Dr. D. J. Cunningham, it is hard to understand how Dr. Brooks could have permitted himself to be drawn into a work so shorn of its just scope.

This erroneous point of view is a very common one, and it is not difficult to see how it comes to be adopted. Busy men, crowded with practice, constantly facing practical problems, finally cease to interest themselves in the principles of the science which they are daily using. The civil engineer who is working in daily routine with embankments and trusses, strains and levels, soon prefers to use his table of logarithms and other means of ready calculation, and forgets the step-by-step methods of logical thought by which was built up the science of mathematics that made these tables possible. Yet, let a new case present itself and the routine engineer is lost, he becomes a common draughtsman; while the truly scientific expert can proceed to apply his principles and make new deductions. In civil engineering it has never been maintained that the *Engineer's Pocketbook* was an adequate treatise on the science, yet a contention somewhat similar is constantly made in anatomy.

In what other science, let us ask, is a student plunged at once into the subject without some definition of its nature, its relation to other sciences, and the terms which it uses? Yet, when we open the treatise before us, expecting to find an introduction explaining the scope of anatomy, its divisions, and some preliminary definitions, we find on the first page—"Osteology. The Skeleton. The skeleton contains 206 distinct bones." As to what anatomy is, what osteology, what the skeleton, the pupil may search the book through and he will find no direct information. The same fault exists in other departments.

We are aware that it is no light task to prepare a work on anatomy that shall comprise all the branches of that vast science and yet be of a convenient size. Sappey's work is in four volumes; Luschka, Henle, Testut, and the new Quain each has three. Debiere, Rauber, and Gegenbaur have two, containing, however, no more matter than Morris's single volume. The works of Hyrtl, Pansch, Langer, Brösike, and Leidy, each in a single volume of moderate size, are rather compendiums than exhaustive treatises. An editor might easily complain of lack of space, yet we believe that it is quite possible to compress the necessary matter within the limits here assigned by giving a different treatment to the letterpress and the illustrations. Some of the latter are unnecessarily large, and much space is lost in paragraphing and leading the heads. This, of course, adds to the appearance of the book, but at what cost? The student who wishes to equip himself properly must at once purchase a treatise on embryology and another on histology to supply what ought to be found in this, properly correlated with the other matter.

*Investigations into the Nature, Causation, and Prevention of Texas or Southern Cattle Fever*, made under the Direction of Dr. D. E. SALMON, Chief of the Bureau of Animal Industry. By THEOBALD SMITH, Ph. B., M. D., and F. L. KILBORNE, B. Agr., B. V. S. Published by Authority of the Secretary of Agriculture. Washington: Government Printing Office, 1893. Pp. 301.

THESE investigations have been carried on since 1888 by the Bureau of Animal Industry, and the investigators conclude

that this fever is a hæmic disease, characterized by destruction of red corpuscles. The symptoms are partly due to the induced anæmia and partly to the *débris* in the blood. The red corpuscles are destroyed by an intracorpuseular micro-organism belonging to the *Protozoa*. Cattle from a permanently infected territory carry the parasite in their blood, though apparently healthy, and direct inoculation of such blood into a susceptible animal will produce the fever. Ordinarily the fever is transmitted from infected to healthy animals by the cattle tick (*Boophilus bovis*), and the fever is more fatal to adult than to young cattle. Two mild attacks or one severe attack will probably prevent a subsequent fatal one. The authors find that sheep, rabbits, guinea-pigs, and pigeons are insusceptible to direct inoculation of infected blood. They advise that in making the diagnosis in the living animal the blood should always be examined microscopically.

*Human Monstrosities.* By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania, and GEORGE A. PIERCE, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part IV. Illustrated with Ten Photographic Reproductions and Forty-six Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. iv-151 to 220.

Thus, the final part of an elaborate and exhaustive work, continues the subject of composite monsters. There are descriptions and illustrations of the dicephalus, ischiopagus, and pygopagus; of the terata anadidyma, the dipygus, syncephalus, and craniopagus; and of the terata anakatadidyma, the prosopothoracopagus, the sternopagus, and the xiphopagus. Among those of double parasitic monsters there are descriptions of heterotypus, of heteralius, of polymelus, of endocyma, of diprosopus parasiticus, of dicephalus parasiticus, of ischiopagus parasiticus, of dipygus parasiticus, of syncephalus parasiticus, of craniopagus parasiticus, of thoracopagus parasiticus, of polygnathus, of epignathus, and of the endocyma. A final section on triple monsters completes the volume. There is a bibliography of journal references and monographs on teratology. The index might have been made more complete, as the reader looks in vain for atelodidymus, derodidymus, psodymus, and hepatodymus, and he may not think that these are varieties of the dicephalus.

All that we have said in commendation of this work is justified by the final part, and the four parts constitute a monument to American scientific research.

*The Recrudescence of Leprosy and its Causation.* A Popular Treatise. By WILLIAM TEBB. With an Appendix. London: Swan, Sonnenschein & Co., 1893. Pp. 20-21 to 412.

This work is the result of a generous collection of excerpts on leprosy from medical and lay publications, assisted by much travel to countries in which that disease is more or less frequently encountered. The author has assumed that leprosy has greatly increased during the last half century—an assumption that is without warrant, absolutely disregarding as it does that the *onus probandi* rests upon the assertor. To this major of the increase of leprosy is added the minor premise that leprosy is inoculable, and the conclusion is reached that, as the most frequent opportunities of inoculating the virus of leprosy are afforded in the practice of inoculating vaccine, therefore vaccination is a true cause of the diffusion of leprosy. One of the fundamental principles of logic is that in an extensive categorical syllogism the assumption must be definite, and, as the last rule affecting the same principle is that the conclusion must correspond in quality with the assumption, Mr. Tebb's argu-

ments fall to the ground on account of the fallibility of his major premise. He himself concedes that there is no information that shows how far vaccination has determined the amount of leprosy in recent times, and yet he subsequently states that the increase of leprosy in the Sandwich Islands, the West Indies, the United States of Colombia, British Guiana, South Africa, and New Caledonia has followed *pari passu* with the introduction and extension of vaccination, which in nearly all these places, without previous inquiry or demand from the inhabitants, has been made compulsory. The Scotch verdict "Not proven" must be the voice of the jury on Mr. Tebb's volume, and the shade of Cervantes must weep in contemplating the futility of applying the lesson of Don Quixote.

*Ueber die Trunksucht und Versuche ihrer Behandlung mit Strychnin.* Von GUSTAV BELDAU. Jena: Gustav Fischer, 1892. Pp. 47.

The author believes that, inasmuch as most of the experiments with nitrate of strychnine in cases of alcoholism have remained unknown to the medical world at large, from the fact of their having been chiefly recorded in the Russian language, he is rendering a good service to science in compiling the works of such men as Parzewski, Korona, Pombrak, Luton, and Dobronrawow. From these works he deduces several conclusions: That the treatment of drunkenness with nitrate of strychnine is productive of more or less favorable results; that strychnine is, in a certain way, the physiological antagonist of alcohol; that the effects produced by this medication seem variable according to the mode of administration, whether by the stomach or by subcutaneous injections, and are proportional to the dose and length of treatment; that better results are obtained with dipsomanics than with chronic drunkards; and that drunkards are extremely tolerant of large doses of strychnine, which do not seem to produce a cumulative effect. It is credible, he thinks, that drunkards subjected to the influence of strychnine no longer feel their previous irresistible impulse to drink, but doubtful if they are really averse to drinking.

*The Creation of God.* By Dr. JACOB HARTMANN. New York. New York: The Truth Seeker Company, 1893. Pp. viii-9 to 432.

We trust that Dr. Hartmann is better qualified to labor in his profession than in the field upon which he has trespassed in this volume. Revamping Voltaire, Paine, Volney, *et id omne genus* may fit the author for the epigram—

Thy writings are immortal, O my friend,  
For he who reads them reads them to no end.

#### BOOKS, ETC., RECEIVED.

Diseases of the Rectum and Anus, their Pathology, Diagnosis, and Treatment. By Charles B. Kelsey, A. M., M. D., Professor of Diseases of the Rectum at the New York Post-graduate Medical School and Hospital, etc. Fourth Edition, revised and enlarged. With Two Chromo-lithographs and One Hundred and Sixty-two Illustrations. New York: William Wood & Company, 1893. Pp. x-490. [Price, \$4.]

A Treatise, Practical and Theoretic, on Cancers and the Cancer Process. By Herbert Snow, M. D. (Lond.), etc., Surgeon to the Cancer Hospital. London: J. & A. Churchill, 1893. Pp. xiii-384. [Price, 15 shillings.]

Appendicitis and Perityphlitis. By Charles Talamon, M. D., Physician to Tenon Hospital, Paris, France. Translated by E. P. Hurd, M. D. Detroit: George S. Davis, 1893. Pp. iv-210. [*The Physician's Leisure Library.*] [Price, 25 cents.]



The Surgical Anatomy and Surgery of the Ear. By Albert H. Tuttle, M. D., S. B. (Harv.), of Cambridge, Mass. With Twenty-eight Original Illustrations, reproduced from the Writer's Drawings from Nature. Detroit: George S. Davis, 1893. Pp. vii-109. [*The Physician's Leisure Library.*] [Price, 25 cents.]

A Practical Treatise on Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, A. M., M. D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-surgical College of Philadelphia. Second Edition, thoroughly revised. In Two Volumes. Volume I. Devoted to Pharmacy, General Pharmacology, and Therapeutics, and Remedial Agents not properly classed with Drugs. Pp. xi-354. Volume II. An Independent Volume upon Drugs. Pp. vi-355 to 1046. Philadelphia and London: The F. A. Davis Co., 1893.

On Lopus. By J. L. Milton, Senior Surgeon to St. John's Hospital for Diseases of the Skin. [Reprinted from the *Edinburgh Medical Journal.*]

Acute Rhinitis with Retention of Secretion. By C. E. Perkins, M. D., Sandusky, Ohio. [Reprinted from the *Medical and Surgical Reporter.*]

Idiopathic Muscular Atrophy. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Chronic Meningo-mylitis. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Denver Medical Times.*]

Vegetable Plates in Bowel and Stomach Surgery; a Discussion of the Proper Technique. By Robert H. M. Dawbarn, M. D., of New York. [Reprinted from the *Annals of Surgery.*]

Legislative Restriction of the Practice of Medicine. By W. P. Munn, M. D., Denver, Col. [Reprinted from the *Pittsburgh Medical Review.*]

The Third Annual Report of the Eye, Ear, Nose, and Throat Hospital, New Orleans, La.

Ueber Diabetes mellitus. Von Dr. A. Kállay, Brunnenarzt in Karlsbad. [Separatdruck aus der *Wiener medizinischen Wochenschrift.*]

Diphtheria—a Clinical Study. By William P. Munn, M. D., of Denver, Col. [Reprinted from the *Medical News.*]

## Miscellany.

**Treatment by Drugs.**—"It is a significant sign of the attitude of the medical profession toward the question of treatment of disease," says the *Lancet*, "that an outspoken belief in the efficacy of drugs is not now an uncommon thing. It is not a great many years since medical science emerged from that mass of empiricism which had grown round it in the middle ages, and perhaps no more interesting or amusing occupation can be found than in trying to arrive at the reasons which in those old days prompted or suggested the use of certain drugs under certain conditions and to effect certain objects. With this emergence from empiricism, bringing with it as it did the foreshadowing to some extent of rational treatment, there came the natural and inevitable skepticism as to the efficacy of drugs, leading too often to a bold negation of their usefulness under any and every circumstance. But, as history is said to repeat itself without ever evoking exactly the same condition of things, so treatment by drugs at the present time bids fair to assume its ancient importance and to occupy much of the attention of every one who has sufficient courage to confront our pathological conceptions of disease with some remedy for the use of which there is a rational foundation. No doubt the reason for this lies in the great

advance that has taken place in two different directions. In the first place, many diseases are now recognized as the effect of toxic substances, using the word 'toxic' in its very widest sense. Many of these toxic substances are of the nature of chemical compounds, and it is scarcely surprising, considering the enormous strides which scientific chemistry has recently made, that a hope should be born, that antidotes for some of the poisons may be discoverable, or that something may be found the application of which may render the morbid process impossible. In the same direction also is the search for some remedy for combating those probably disturbed internal conditions which underlie many of what, for want of a better name and more exact knowledge, we term 'functional' diseases, and it is significant to find an authority of the high standing of the latest Fothergillian medalist declaring his growing belief in the efficacy of drugs in the treatment of disease. We can not do better than quote some of his own words: 'I have been surprised,' he says, 'at the amount of good that has been done in affections commonly looked upon as intractable—relief, arrest, and restoration. With each successive year's experience it seems to me greater and more distinct and to elicit more gratitude from the patients to whom it is applied.' These words are very encouraging, and we have no doubt that during the next few years there will be discovered even more potency in the weapons already at our disposal, as most certainly new ones will be revealed."

**Arsenical Neuritis.**—At a recent meeting of the Johns Hopkins Hospital Medical Society, the proceedings of which are given in the *Johns Hopkins Hospital Bulletin* for April, Dr. Osler said:

"On October 25, 1892, the patient before you was admitted to my ward with Hodgkin's disease, the cervical, axillary, and inguinal glands being involved. Having had under observation for now nearly four years a case of this disease, which has been remarkably benefited by the prolonged use of Fowler's solution taken at intervals, we naturally placed this man upon the same drug. The details of his case, so far as they relate to the lymphatic disorder, do not concern us. The arsenic was begun on October 27th, given as Fowler's solution, and gradually increased. He took it on the first occasion for ten days; it was then resumed on November 14th, and in two weeks the dose reached fifteen minims three times a day. Toward the end of November it was noted that his skin, which was naturally of a somewhat dark color, had a much deeper tint, and that of the abdomen was very distinctly bronzed. Throughout the month of December he did not do well. The arsenic was stopped on the 19th and begun again on the 27th. From the outset the patient has had that interesting feature in many cases of Hodgkin's disease, an intermittent pyrexia, and, as may be seen by his last week's chart, the temperature rises every afternoon and evening to about 104°. The pigmentation seemed to increase throughout December. Twice during the first two months of his stay in hospital there was slight diarrhoea, which was attributed to the arsenic. About the middle of January it was noticed that he was tender to the touch and walked somewhat stiffly. He is a Pole, speaking no English, and, as there was no one in the ward to interpret for him, these symptoms did not perhaps at first attract the attention they deserved. The most striking feature at this time was the sensitiveness on pressure. The skin itself did not appear to be painful, but if, for example, the arm was grasped, or the pectoral muscle lifted, or the thigh pinched, he winced and tears came into his eyes. By the end of January he walked with much difficulty and could scarcely go from his bed to the closet. He has naturally, in the course of his disease, wasted a good deal, but the legs seem to have become distinctly flabby within the past two or three weeks. The knee-jerks, which were present on January 10th, are at present absent.

"On February 2d Dr. Hoch reported the faradaic excitability of the nerves of the leg was diminished, the galvanic also to a slight extent. In the muscles the diminution to both currents was more marked, and the contraction following the galvanic stimulation was decidedly slower, and the anode, if not larger, was at least equal to the K. O. C. The muscular power in the arm is not so strikingly diminished, though the grasp is feeble in comparison with what it was. The hypersensitiveness of the muscles does not appear to be at all diminished.

Between the 27th of October and the 10th of January this patient



took  $\frac{5}{8}$  of 18 of the liquor potassii arsenitis, equivalent to 16½ (ca.) grains of arsenious acid. During these seventy-five days there were fourteen days in which the drug was omitted. The marked sensory changes, the gradual impairment of muscular power, and the progressive character indicate very clearly the peripheral and neuritic nature of the affection, and though he has a chronic cachexia, in which, as in cancer or tuberculosis, peripheral neuritis might develop, yet it seems more rational to attribute it to the somewhat prolonged use of the arsenic, more particularly as he has had also another striking feature of arsenical poisoning—namely, pigmentation of the skin."

**The Chinese Movement Cure.**—In the March installment of Dr. John C. Thomson's article on Surgery in China, published in the *China Medical Missionary Journal*, the following passage occurs:

"The sixth operation of surgery, which I have rendered 'shampooing,' is worthy of more than passing notice, since in addition to the general idea of massage it has developed into a science resembling in some respects, and rivaling in detail at least, the now famous Swedish movement cure. Massage in its simpler form, consisting of tapping, kneading, pinching, chafing, and pummeling the body all over, is widely used as a remedy for muscular fatigue, nervousness, headache, paralysis, pelvic disorders, labor, etc., and also as a simple luxury, the barbers being the operators and concluding their daily shaving and dressing operations with a sound pummeling to the back and limbs of such of their patrons as can afford to pay for it.

"This, as well as the more complicated system of massage combined with air-swallowing and muscular exercise, is of great age, being traced not to the usual Hwang Ti (2697 B.C.), legendary though that emperor be, but some twelve centuries beyond him. Into the history of the system, however, I shall not here enter, referring for that and for a full description of its theory to a paper on the subject by D. J. Macgowan, M.D., Wênchow, in the *Customs Medical Report*, No. 29, 1884-'85; and here passing directly to a brief account of the frictions and movements themselves taken from that paper.

"The period of air-swallowing and friction exercises is to be divided into three parts of one hundred days each. After certain preliminary carefully described inhalations of the sun's air on the first of the moon, and of the moon's air at the full moon, all is ready for a commencement being made. During the first month friction is to be made by two youths, each on alternate days, they rubbing the patient's abdomen with the right hand and from right to left, at first lightly, but gradually increasing the pressure, and this for an hour three times daily. By the end of the first month the services of the youths may be dispensed with, when a form of shampooing is to be practiced by the patient himself, thumping his ribs with a bag filled with water-worn pebbles, weighing a pound, three times daily. During the third month a pestle about six inches long, or a round bat somewhat longer, is to be employed for pounding the abdomen three times a day; they are to be made of hard wood, and their form is to be as shown in the illustration. Meanwhile friction and pounding the ribs is to be continued. During the fourth month the bat and pestle are to be alternately used along with friction, and this completes the first period of one hundred days.

"From the fifth month of the exercises the bag of pebbles is to be used continually till the close of the eighth month, which closes the second period of a hundred days. During the third period the back is to be pounded in like manner. During the whole three hundred days it is directed that continence be maintained except once between the hundred-day periods; and ever afterward, except once in fifty days.

"On completing these exercises muscular movements are to be commenced, of which there are twelve kinds, namely:

"I. Stand erect and firmly, retain the breath, bring the flexed hands together on the chest, knuckles meeting, keeping the mind at absolute rest.

"II. Stand on the toes and extend the arms laterally, with eyes fixed, mouth closed, and mind perfectly quiescent.

"III. Maintaining the tiptoe posture, raise the arms above the head and bring the hands together with palms turned upward, joints closed, tongue pressing roof of mouth; clinch the fists and bring the arms firmly and slowly down.

"IV. Raise one arm above the head, palm hollowed, eyes directed

toward it, inhaling through nostrils, and forcibly and slowly bringing down the arm. Repeat with the other arm.

"V. As if pulling the tails of nine bulls, stand on one foot bent and extended forward, the other extended backward; cause the air of the pubic region to move forcibly, thrusting one arm forward, the other backward, eyes fixed on the clinched fist. Repeat, reversing the legs.

"VI. Extend the arms forward, as if pushing out and drawing in, seven times.

"VII. Head inclined, with a hand stretched behind the neck. Repeat with other hand. Maintain erect posture, with gentle breathing.

"VIII. Sit with legs wide apart, pressing the hands on the floor, and forcibly raise them, eyes fixed, mouth closed; rise and bring the feet together.

"IX. Turn the arms alternately across the chest, fixing eyes on the hands, the mind meantime settled.

"X. Assume the posture of the 'crouching tiger,' one knee bent, the other stretched backward, head turned upward, palms resting on the ground.

"XI. Bend forward, placing the hands at the back of the head, so as to cover the ears; close the teeth, press roof of mouth with tongue.

"XII. Finally, keeping legs erect, bend forward, with fixed eyes and upturned head, the hands clasped on the ground; rise; stamp twenty-one times, and stretch the arms alternately seven times; then sit cross-legged, each leg in turn, with closed eyes.

"The above exercises are to be performed three times daily for an indefinite period, and with them are to be gone through certain supplementary exercises for the development of individual groups of muscles, which Dr. Macgowan describes in detail. Exercise is recommended to be taken in the open or in woods, and it is again and again provided that in going through the exercises there is to be no thinking: the mind must be absolutely quiescent.

"In conclusion, regret is expressed that owing to the business vocations or inconsiderateness of youth this means of averting disease is deferred till old age, when it can be of no avail."

**Erasistratus and the Diagnosis of Love.**—In one of Dr. James Finlayson's bibliographical demonstrations, entitled *Herophilus and Erasistratus*, published in the May number of the *Glasgow Medical Journal*, we find the following:

"When discussing Galen's works on a previous occasion, I brought under your notice his recognition of the illness of the wife of Justus as being due to love (Kühn's edition, tom. xiv, p. 630); Galen in that passage refers to a somewhat similar diagnosis made by Erasistratus, which is evidently the celebrated one narrated by various authors. I give the account as contained in Plutarch's *Life of Demetrius* (Langhorne's translation):

"He [Demetrius] was informed too that his daughter, who had been married to Seleucus, was now wife to Antiochus, the son of that prince, and declared queen of the barbarous nations in Upper Asia. Antiochus was violently enamored of the young Stratonice, though she had a son by his father. His condition was extremely unhappy. He made the greatest efforts to conquer his passion, but they were of no avail. At last, considering that his desires were of the most extravagant kind, that there was no prospect of satisfaction for them, and that the succors of reason entirely failed, he resolved, in his despair, to rid himself of life, and bring it gradually to a period, by neglecting all care of his person and abstaining from food; for this purpose he made sickness his pretense. His physician, Erasistratus, easily discovered that his distemper was love; but it was difficult to conjecture who was the object. In order to find it out, he spent whole days in his chamber; and whenever any beautiful person of either sex entered it, he observed with great attention not only his looks, but every part and motion of the body which corresponds most with the passions of the soul. When others entered he was entirely unaffected, but when Stratonice came in, as she often did, either alone or with Seleucus, he showed all the symptoms described by Sappho, the faltering voice, the burning blush, the tumultuous pulse, and at length, the passion overcoming his spirits, a *deliquium* and mortal palsy.

"Erasistratus concluded from these tokens that the prince was in love with Stratonice, and perceived that he intended to carry the secret

with him to the grave. He saw the difficulty of breaking the matter to Seleucus; yet depending upon the affection which the king had for his son, he ventured one day to tell him "that the young man's disorder was love, but love for which there was no remedy." The king, quite astonished, said, "How! love for which there was no remedy!" "It is certainly so," answered Erasistratus, "for he is in love with my wife." "What, Erasistratus!" said the king, "would you, who are my friend, refuse to give up your wife to my son when you see us in danger of losing our only hope?" "Nay, would you do such a thing," answered the physician, "though you are his father, if he was in love with Stratonice?" "O my friend," replied Seleucus, "how happy should I be if either God or man could remove his affections thither! I would give up my kingdom, so I could but keep Antiochus." He pronounced these words with so much emotion, and such a profusion of tears, that Erasistratus took him by the hand and said: "There is no need of Erasistratus. You, sir, who are a father, a husband, and a king, will be the best physician too for your family." Upon this Seleucus summoned the people to meet in full assembly, and told them it was his will and pleasure that Antiochus should intermarry with Stratonice, and that they should be declared King and Queen of the Upper Provinces."

"This story is given by so many authorities that we may conclude that it is essentially true, particularly as the marriage of Antiochus and Stratonice is authenticated in other ways. Curiously enough, however, some very similar stories are reported regarding other physicians.

"For the cure of the young prince Erasistratus is reported by Pliny to have received a fee of 100 talents (*Hist. Nat.*, lib. xxix, cap. i), which is calculated as amounting to nearly £25,000 sterling. Another passage in Pliny (lib. vii, cap. xxxvii) records a fee to Cleombrotus of the same amount, but it is supposed that this is simply an error, and that Erasistratus is the name really intended."

**Candor in Prognosis.**—In the last number of his *Asclepiad* Dr. Benjamin Ward Richardson says:

"The author or authoress of the remarkable modern work entitled *Gossip of a Century* observes, in speaking of the relationships of doctor and patient, that 'faith in his medical attendant and faith in his recovery are the sick man's staff, and will often save him when treatment fails; the greatest Physician told his patient in so many words it "was faith that made him whole," and every doctor who is worth his shilling, to say nothing of the gold coin, knows the power of imagination.'

"The opinion thus expressed is a lesson drawn from the observation of its writer on effects which have been supposed to follow the communications, in the form of prognosis, which sometimes pass between the patient and physician. The case of Balzac is quoted, and the idea is conveyed that 'the too conscientious physician often takes away the patient's last chance. Let him (the patient) read the word "hopeless" in the doctor's face, and, however brave, he is lost; a dose of poison would not be more effectual.'

"I look back over a long period of practical experience as I study these statements. I ask, Is perfect candor in prognosis really so bad? The conclusion, the only conclusion I can arrive at, is that candor in regard to good or bad effects turns entirely on diagnosis. If, though symptoms may seem urgent, the physician be absolutely certain there is no organic change of structure in the sick man, change involving life, then prognosis of hope and persistence in favorable prognosis is a good and curative procedure; and faith plays its splendid part with the greatest credit. But when there is sure and certain evidence of organic disease of vital organ or organs, then all the faith in the world will never make whole. It is in these last-named conditions that prognosis is so difficult and delicate a subject. It is at the moment when the physician is certain that declaring the worst can have no material effect on the condition of his patient that candid prognosis is thought to be so doubtful by lookers-on. But suppose in such a crisis the physician speaks hopefully and looks unconcernedly, knowing the deceit he is carrying out, what can he expect to get but merciless criticism when the near and inevitable event has occurred? His whole reputation is at stake if he deceive a dying man and a dying man's friends.

"Candor in prognosis is right, let the consequences be what they may, when it rests on assured diagnosis; and so far from having a bad

it often has a good effect. The foreknowledge of the worst brings to most minds, even the most timorous, resignation in place of despair. It makes way for preparations of various kinds; and when it is properly led up to, it has nothing whatever to do with curative faith. Faith never healed an aneurysm, restored a cavernous lung, removed a fibrous plug from the heart, brought back to natural function a malignant gland, or dispersed a stone in the kidney, ureter, or bladder; and when any final deathly arbitration is present, the wisest physician's word or look can be of no vital consequence to the fate in store for the sick man. On the contrary, firm and candid statements are the best that can be offered. I recall well the case of an important official of the state during a period of great political crisis. This gentleman was within a few weeks of death from an incurable disease. He was under the care of Dr. Daniel Noble, Sir Thomas Watson, Dr. Arthur Wilson, Dr. George Budd, and myself. His family pressed us 'to hold out hopes of his recovery.' We declined. Another physician was summoned who, entirely replacing us, held out such hopes that a public announcement of a speedy recovery and return to official duties went forth. In three weeks the death of that patient took place, by what might well be called natural necessity, and the confusion that followed, the dismay, the disgust for the false prognosis, it is impossible to describe. No! let the outside world say what it may, candor in prognosis, founded on solid diagnosis, is the right course, both for patient and friends; it can not kill a man stricken with organic disease; it can not weaken a brave man, and it may give to one esteemed a coward resignation amounting to resolution, since death at some time is sure. For my own part, I should detest no man more thoroughly than that man who, seeing me lie hopelessly stricken at his feet, conveyed the idea by false word or look that my days or hours were not numbered."

#### Contemplated Postponement of the International Medical Congress.

—In a letter dated May 1st, the *Lancet's* correspondent in Rome says:

"I have to make the rather serious announcement that the International Medical Congress, arranged to hold its sittings from September 24th till October 1st, may possibly have to be postponed. No actual decision has yet been taken, but at recent meetings of the organizing committee a section of that body was of opinion that 'in seguito alle condizioni sanitarie di alcune regioni d'Europa' (in consequence of the sanitary state of some parts of Europe) it would be advisable to hold the congress at another season. It was feared that, on account of the 'condizioni sanitarie' referred to, many physicians and health officers whose presence at the sittings was of supreme importance might be unable to attend. The postponement of the congress would equally involve that of the 'Esposizione Internazionale di Medicina ed Igiene' to be held at the same time. This, as I have said, would be a rather serious step to take, and next week I hope to be able to announce that the fears that have suggested it are so far unfounded and that the postponement in question will not be carried out. Arrangements, like those already completed, of a complicated kind and on a world-wide scale, are not to be lightly set aside, unless by the *force majeure* of exceptionally grave and quite unforeseen circumstances—circumstances which do not seem to have occurred, as yet at least, in any of the great centers of European population. Certainly the full and carefully authenticated reports of the public health of Great Britain and the continent, given in the *Lancet* of the 29th ult., furnish no ground for alarm at the 'condizioni sanitarie' of any part of Europe in the immediate present. Meanwhile the 'adesioni' of representatives of foreign medical schools and official sanitary boards continue to reach the organizing committee. The University of Madras announces its cordial alacrity to intervene at the congress, reserving till a future date the name of its delegate. The French Société de la médecine légale, whose headquarters are in Paris, has forwarded an announcement to the same effect, while the Antwerp Association of Medicine has nominated its representative in the person of Professor Leroy. The medical school of that city will further have a delegate appointed by the Minister of Public Instruction. Railway and steamboat companies, in addition to those already enumerated, have intimated their readiness to convey the 'congressisti' to and from Rome at reduced fares, and Signor Martini, the Minister of Public Instruction in the Italian Government, has, in concert with the directors of the national museums and galleries of archaeology, sculpture, and



painting, provided the members of the congress with special facilities for visiting the same. The excavations now in progress at Pompeii will also be thrown open to members on simply producing their congress ticket. Considering the maturity that these and a thousand other arrangements for the convenience of the 'congressisti' have already reached, to say nothing of the fact that delegates from the Antipodes are already on the eve of starting for Rome or have adjusted their engagements *ad hoc*, it seems hardly fair to contemplate the postponement referred to, except on grounds of greater gravity and precision than those just indicated."

**Menthol in Pruriginous Affections of the Skin.**—In the May number of the *British Journal of Dermatology* there is an abstract of an article by Dr. Colombini, published in the *Giornale italiano delle malattie veneree e della pelle* for March. Dr. Colombini gives his experiences with menthol in forty-four cases. He divides these into three groups:

(1) Dermatoses in which *pruritus* is a consequence of the eruption or of the cause of the eruption—*e. g.*, eczema and the pruritus persisting in scabies after destruction of the acarus; in all, twenty-six cases.

(2) Dermatoses in which *pruritus* is the substantive disease without any visible skin lesion—*e. g.*, pruritus nervosus; in all, nine cases.

(3) Dermatoses in which the cutaneous lesions are either wholly or partly the result of scratching—*e. g.*, urticaria and certain forms of eczema; in all, nine cases.

He used the following formulæ:

1. R Menthol..... 5-10 parts.  
Spiritus vini rectificati ..... 100 "  
M. Sig.: Lotion.
2. R Menthol..... 10 parts.  
Olei amygdalæ dulcis..... 100 "  
M. Sig.: Applicatio.
3. R Zinci oxidi,  
Amyli pulverisati..... .aa 50 parts.  
Menthol..... 1-6 "  
Paraffini mollis ..... 100 "  
M. Sig.: Pasta.
4. R Zinci oxidi,  
Bismuthi subnitratæ..... .aa 10 parts.  
Menthol ..... 1-3 "  
Amyli pulverisati..... 30 "  
M. Sig.: Pulvis aspersorius.

As regards Group I, the results were remarkable, all the cases of eczema being relieved almost immediately, and consequently cure was greatly expedited; even in a case of prurigo Hebra, in a child aged twelve, unbroken sleep was obtained. Ichthylol had been previously tried in the form of paste, but with no great benefit in any of these cases.

Of the nine cases forming Group II, three were completely cured [pruritus cutaneus, two; pruritus hiemalis (Duhring), one]; four were considerably relieved [pruritus cutaneus dorsi et crurum, one; pruritus cutaneus diffusus, one; pruritus senilis, one; pruritus cutaneus, one]; and two remained obstinate. Other pastes—*e. g.*,  $\beta$ -naphthol and ichthylol—had been previously used. In some of these cases the sensation of cold was complained of after the application of menthol; it, however, passed off.

Of the nine cases included in Group III, the efficacy of menthol was incontestable. All were cured. [Eczema scroti, two; eczema pruriginosum diffusum, three; urticaria, three; eczema post scabiem, one.]

In conclusion, Dr. Colombini considers menthol should always be used in cases where pruritus is the chief symptom and its cause a nervous one. The solution of menthol in oil is, as a rule, to be preferred to that in spirit.

The Massachusetts Medical Society will hold its one hundred and twelfth annual meeting in Boston on Tuesday and Wednesday, June 13th and 14th, under the presidency of Dr. James C. White, of Boston. In the *Section in Medicine*, papers will be read on The Influence of College Life on Health, by Dr. Grace A. Preston, of Northampton, Dr. Edwin Farnham, of Cambridge, and Dr. R. W. Greenleaf, of Boston; and on

The Treatment of Pneumonia, by Dr. F. C. Shattuck, of Boston. In the *Section in Surgery*, Dr. A. G. Gerster, of New York, will read a paper entitled How should the General Practitioner deal with Strangulated Hernia? The Shattuck Lecture, on Tuberculous Pleurisy, will be delivered by Dr. William Osler, of Baltimore. At the general meeting, Dr. C. W. Gallope, of Boston, will read a paper entitled A Consideration of Erysipelas occurring during the Puerperium; and Dr. F. H. Williams, of Boston, will read one on Diphtheria and Other Membranous Affections of the Throat. The annual discourse will be delivered by Dr. J. T. G. Nichols, of Cambridge.

#### A Powder for Hyperidrosis (*Union méd.*).

- B Washed sulphur..... gr. xxx;  
Powdered arrowroot..... 3 iv;  
Salicylic acid..... gr. vii.

Sig.: To be dusted over the feet and between the toes.—*British Journal of Dermatology.*

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the typesetters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.



## Original Communications.

### THE PATHOLOGY AND TREATMENT OF GRAVES'S DISEASE.\*

By W. H. THOMSON, M.D.,

PROFESSOR OF MATERIA MEDICA AND OF NERVOUS DISEASES,  
UNIVERSITY OF THE CITY OF NEW YORK;  
PHYSICIAN TO BELLEVUE AND ROOSEVELT HOSPITALS.

THE progress of pathology often illustrates the disadvantage of the premature naming of diseases after some of their common or prominent symptoms, for further knowledge may show the disease to have much wider relationships than at first suspected, and in some cases to exist without these symptoms being present. If such be the case, the symptomatic name may then operate to prevent a correct diagnosis. Locomotor ataxia is a good example of the concealing power of such names, for I have known of an elaborate diagnosis being made of a tumor in the optic thalamus to account for the optic atrophy of a tabetic patient who, though wholly blind, yet had no ataxic gait, while in other patients with this disease the significance of pains or of gastric crises has been similarly misinterpreted, because the motor symptoms were so little developed. In like manner the name exophthalmic goitre has had much the same influence in preventing the recognition of Graves's disease in many instances, and still more in confusing the views of its pathology. In reading the numerous contributions on the pathology of this interesting affection, it is striking to note how predominantly the conception of some textural lesion in the nervous system that would account for the exophthalmia and the goitre has directed either the investigation or the speculation, in seeming forgetfulness of the fact that these symptoms are not essential to the affection, because they may be both present with Graves's disease absent, or both absent with Graves's disease present.

The safest rule to follow in pathological problems is to seek first for the most constant characteristics of a given complaint, rather than for the most obtrusive ones, for, when the latter are found to be wanting in some real cases of a given affection, they sink at once from the rank of a primary to that of an accessory relationship to its true pathology. Having found the most constant characteristic of the disease, we must even then keep to what is most constant about the characteristic itself when we come to analyze it, lest we be again turned aside from the right course by non-essential accompaniments. Thus the most uniform condition in Graves's disease is what may be correctly described as a state of marked agitation. In many instances it is for long a purely physical state, not involving the mind or the spirits, and yet the patient acts as if greatly alarmed about something. This has led many writers to pronounce fright to be a leading *cause* of the disease, and how far this hypothesis may be pushed is illustrated by Dr. Hector W. Mackenzie, in his excellent lectures on Graves's

disease (*Lancet*, September, 1890), when he sums up its pathology by saying that if we can not show in each case that the patients themselves have so started from a fright, yet some of their ancestors may once on a time have been greatly terrified, and thus laid the foundation for Graves's disease in a descendant by what he terms an unconscious hereditary memory. We are thus at the outset diverted from the study of a truly characteristic condition to that of a most occasional element in the clinical history of the affection, and which is then made to do duty as a guide to its true pathology. The parallel instance of chorea, where fright is so often spoken of as a cause of the disease, naturally suggests the desirability of a new technical meaning of the term "cause" in medicine. It would be a great gain to restrict its use only to some element, discovered or to be discovered, in the etiology of a disease without whose presence the disease would not exist, while for all variable factors to employ some such term as occasion. Thus fright may be the occasion of the first manifestation of chorea or of Graves's disease, a blow the occasion of the development of a mammary cancer, a chill from exposure to cold the occasion for the development of a croupous pneumonia or of a pulmonary phthisis, but it is only a hindrance to our progress toward a correct pathology of either of these diseases to put down any one of the very varying occasions of its first manifestation as its cause. It would be better to defer rating anything that is occasional in a disease until its proper and quite subordinate place is settled by the due precedence being determined of the few constant over the many occasional elements. This is particularly the case with such a convenient cause to allege as fright in nervous patients, for not infrequently it may prove on examination that the patients had been for months in a state of true physical agitation before the accident of a mental impression occurred which they describe. In my last eight consecutive cases of Graves's disease in private practice not one of them would ascribe the initiation of the complaint either to fright or to any other emotional cause. Of course it is impossible to say what may have happened to their ancestors, but I think that a much nearer source of their bodily agitation may be found in their present living frames than in the dead past.

The first of the above-mentioned patients presented at her first visit a complete picture of the constant, in distinction from the occasional, symptoms of Graves's disease. I had known her well for some time, from having attended other members of her family, but she had always been healthy before, so that I had not seen her for some months. She showed no sign of either exophthalmia or goitre, but, as she now began her story, she seemed as if about hesitatingly to divulge some great cause of mental distress. Her voice trembled as if choked with emotion, her hands trembled, and her respiration was hurried and catching. She said, however, that she had had nothing to make her so nervous, nor could she imagine why she was so, except that she had had diarrhoea all summer, but that other people had diarrhoea without being as nervous as she was. As soon as I examined her pulse, which was over 140, with a normal temperature, and noted that the muscular tremor was so extensive, I felt assured that she had Graves's disease, though

\* Read before the New York Neurological Society, March 17, 1893.

it was not till long afterward that she showed any enlargement of the thyroid, and never up to her death from this disease, three years afterward, did she show any exophthalmia.

The second and third patients were sisters, the second a young unmarried woman with very rapid action of the heart and considerable enlargement of the thyroid, but no exophthalmia. She entirely recovered. Her sister was married and some fifteen years older. She had no marked goitre and but a very slight exophthalmia, but she had rapid heart action, with very extensive throbbing of the arteries, and complained of frequent abdominal pains. She quite recovered for four years and then had a relapse, from which she has again improved. Both these patients had suffered from rheumatism, and the elder had a permanent hip lameness from it. They were both poor and hard-worked, but otherwise had no cause of mental depression or shock.

The fourth patient found her nervousness a mystery to her. She had naturally a lively disposition and she had contracted a fortunate marriage, so that she felt contented with everything in her life, when without apparent reason she became unaccountably nervous. She developed goitre and exophthalmia very rapidly, and with von Graefe's symptoms very distinct, and she became both anemic and emaciated. The heart's action was violent and accompanied by loud systolic murmurs at the base and apex. After a year of most serious symptoms she gradually improved and is now in a fair state of health, with but moderate exophthalmia or goitre.

The fifth patient, a very accomplished lady and a happy wife and mother, came complaining that she lacked the repose of strength. She is a prominent advocate of the rights of women, and hence felt humiliated at finding herself turning into a weak, trembling, nervous creature. She had enlargement of the right side of the thyroid, but no exophthalmia on either side. She had suffered from both rheumatism and chorea in childhood, and has now two children—daughters—who are beginning with choreic symptoms. Under treatment she wholly recovered.

The sixth case was peculiar in that the symptoms first developed when the patient was about sixty-five years of age. She had thyroid enlargement and was subject to suffocative nocturnal attacks like laryngeal crises. She had rather persistent albumuria for six months, and during the course of Graves's disease she was extremely nervous and much troubled with insomnia. She wholly recovered for four years from all her symptoms, finally dying from pneumonia during the epidemic of influenza of April, 1891, at the age of seventy-four. She had a marked family history of rheumatism.

This lady, however, had a daughter, now about thirty-five years of age, who, after some years of delicate health, began to show a uniform enlargement of the uterus, which in about two years continued to increase until it reached the umbilicus. My friend Dr. Robert Watts examined her with me and pronounced it a myxomatous hypertrophy of the uterus, similar to a case which we both had together in the Roosevelt Hospital some years before, and in which afterward the late Dr. Penlee performed hysterectomy at the Woman's Hospital. The interest of the present case is that, without any other symptom of myxœdema, she has gradually become very enfeebled in mind, and presents an appearance of pseudo-exophthalmia, due to emaciation without retraction of the eyeballs. She has frequent movements of the lower jaw of a choreic character. Her pulse is slow and weak and her general condition the reverse of Graves's disease, as she is listless and apathetic. The thyroid gland seems to be wholly atrophied. Her case is interesting as one of cachexia thyreoidopriva in the daughter, with Graves's disease in the mother.

The seventh case of Graves's disease is that of a young married lady who developed goitre without an exophthalmia and with rather severe tachycardia. She improved, but had not recovered, when she became pregnant. This did not seem to affect the disease one way or the other. She gave birth to a child at term, but it lived only a few hours. She is now, at the expiration of a year, improved, but not fully restored. No mental shock of any kind had ever occurred to this patient, who, on the contrary, is of a very equable temperament, without nervousness, so to speak, in spite of persistent palpitation.

The eighth patient, a married lady aged forty-four, I saw in consultation with Dr. Emil Mayer, of this city, into whose care she had come after suffering for eighteen months with lancinating pains in both legs, persistent headaches, insomnia, and muscular tremors; then persistent diarrhoea with emaciation, losing forty-eight pounds in weight, with progressive weakness till she could not leave her bed. Meantime her heart action was 140 and there was general arterial throbbing. Various diagnoses had been made in her case, including general tuberculosis, but because she presented no sign of either goitre or of exophthalmia, Graves's disease had not been suspected. I diagnosed her case as such, and under the treatment for that affection, including galvanism, her diarrhoea soon stopped and her improvement was progressive, so that on seeing her two months ago she had regained her flesh and color and her pulse was 70.

Now, in neither one of these eight cases was fright or any other emotion an element of the clinical history. With the exception of the two sisters mentioned, they were, on the contrary, more than usually free from causes of mental strain or depression in their life environment or experience, and so far, therefore, they indicate that mental factors are accidental rather than essential elements in the etiology of the complaint.

Of these eight cases, both exophthalmia and goitre were wholly absent in one. Exophthalmia alone was absent in five. Goitre was absent in one, and was present slightly and only late in the disease, just before death, in one. Both exophthalmia and goitre were marked only in one. But in all there was the same pronounced tachycardia and muscular tremor, and in each there was emaciation—moderate in five and very pronounced in three. In four, imperfect inspiratory power was noted, but not so particularly as I shall look for it hereafter after reading Dr. Louise Fiske Bryson's observations of this symptom in Graves's disease.

I have chosen these eight cases from my private practice notes because they sufficiently illustrate the familiar features of the disease which I wish to dwell upon as most related to its pathology. One peculiar case I will only further mention, that of a patient who was sent to me by her physician four months ago, and who presented remarkable aneurysmal dilatations of the systemic arteries. There were several on the radial and on the right external carotid. The story was that they were transient in character. She had suffered a great deal from palpitation and tachycardia, but had no goitre or exophthalmia. Shortly after her visit she died suddenly with symptoms of hemiplegia.

The fact, therefore, that Graves's disease may exist even in a fatal degree of severity, as illustrated by the first patient in my list, without either exophthalmia or goitre, should be emphasized from the liability to the disease not



being diagnosticated, owing to the absence of these symptoms, as actually occurred in the case of the eighth patient. The enlargement of the thyroid is mentioned by all writers as very variable in degree and in duration, even in the same patient, and it is equally noted that the rapid action of the heart often both precedes the goitre and persists after its subsidence, it and the muscular tremor being the first symptoms to develop and the last to disappear, and together constituting the most invariable elements of the disease. Our attention, therefore, should be particularly directed to them as the most related to its pathology, and, moreover, the most important practically, as the earlier the recognition of the disease the better for its treatment. As to pathology, a paralytic lesion involving the common nucleus of the glossopharyngeal, vagus, and spinal accessory nerves, and extending to the neighboring vaso-motor center in the medulla oblongata, would account for the whole group of symptoms which make up the picture of Graves's disease. In the first place, it should be noted that simple irritation of the lower branches of the glossopharyngeal and of the superior laryngeal nerves is sometimes accompanied by general muscular tremor. I once saw this amusingly illustrated by a stalwart young German butcher who came into my office trembling like a leaf because he had a fish bone stuck in his throat. He said in a husky voice that he was not frightened, but that he could not help shaking. With the laryngoscope I saw the bone directly across the chink of the glottis, and as soon as it was removed his shaking stopped. In experimental thyroidectomy on monkeys and dogs the commonest immediate result is stated to be general muscular tremor, which lasts for many weeks. I regard this symptom as the direct effect of injury to branches of the superior and recurrent laryngeal nerves, which, according to Lindemann, are the only nerves which supply the thyroid, rather than due to the effects of the removal of the gland itself upon the blood, for the tremor is much too immediate upon the operation to be so explained.

Now, such a bulbar lesion as we have supposed would also produce the other great constant feature of Graves's disease—namely, the tachycardia and the universal relaxation and throbbing of the systemic arteries. It would also explain the interference with the inspiratory expansion. It would not account, however, for the mechanism of the exophthalmia or of the goitre, though for the latter condition we have another cause to be mentioned presently. When we turn to pathological anatomy, however, we have no constant evidence of any textural lesion in the medulla, whether of the above-mentioned centers or of other parts. The experiments of Filehne, recently repeated with confirmatory results by Seeligmüller and by Bienfait, in which lesions of the restiform body produced increased pulse-rate and corresponding unilateral exophthalmia with muscular tremors, are open to the objection that it is difficult to perform such experiments without affecting contiguous bulbar centers. - On the other hand, autopsies after Graves's disease have not shown any constant distinctive changes in the restiform bodies any more than in the cervical sympathetic, which was once supposed to be the anatomical

seat of the affection. These theories, moreover, share in common the objection that the enlargement of the thyroid and the exophthalmia are supposed to be the chief elements of the disease, which, as we have seen, is quite incorrect.

As pathological anatomy, therefore, has so far not revealed any truly characteristic change which can be causally associated with the genesis of Graves's disease, the question arises whether we can look elsewhere than to the nervous system for the *fons et origo* of the malady. Here I think that clinical experience may afford some significant intimations.

In the case of the first patient above mentioned I tried a great variety of remedies which I found recommended as serviceable in the treatment of this complaint. Belladonna, arsenic, nitrate of silver, the bromides, digitalis, and the iodides were prescribed in succession, without satisfactory results. The diarrhœa continued for many weeks unchecked by astringents, and the emaciation increased, with the rapid pulse and excessive nervousness and insomnia. At last I prescribed a complete change of diet, and ordered that the patient, who was now confined to her bed by her weakness and tremor, should be fed exclusively with matzoon and stale bread. The change for the better upon this diet was surprisingly rapid and progressive. The diarrhœa stopped without medicines, both her nervousness and sleeplessness improved, and finally the pulse became remarkably lessened. Iron then seemingly began to improve her anemia, when before it appeared to aggravate her symptoms, and in the course of two months she seemed to be getting quite well. After four months she had so much improved that, contrary to my advice, she discontinued the matzoon and began to resume a meat diet, for which she was always very fond. Two months after this, on her return from the country, I found that all her former symptoms had recurred, including the diarrhœa. She again was put on matzoon and again she improved, and this time she continued the milk for about six months, with such a gain in flesh and color that she felt that she was well. She then went back to her ordinary diet, and I did not hear from her for some time, when I was called, to find her now worse than ever, because of the development of mental symptoms of both irritability and obstinacy which she had not shown before. She declared that she would rather die than take the matzoon, and nothing would persuade her to try milk in any form. One day I was sent for to see her because she seemed to be so low. I found her pulse to be with difficulty countable, and she was in a state of delirium with hallucinations. While I had my finger on the pulse, trying again to count it, it suddenly stopped, her pupils dilated, and the patient was dead with scarce a perceptible struggle.

Now, in this case a change of diet effected what drugs had quite failed to do; and then a first return to a meat diet brought back a return of the disease; then to be again and unmistakably arrested by discontinuing meat and resuming milk; and, lastly, a second return to meat brought back a fatal return of the disorder. This case has led me ever since that date (1880) to rely mainly on the dietetic treatment of Graves's disease, with such favorable results, both in hospital and private practice, that I have now little doubt that a specific disorder of intestinal, in distinction from gastric, digestion is a primary factor in the genesis of this affection. It is, of course, a familiar fact that diet has much to do with the therapeutics of functional nervous diseases, but until within recent years our practice in this



respect has been based wholly upon empirical grounds. In such an instance as this, however, it is difficult not to infer a causal relation between the food taken and the resultant symptoms. The meat diet seemed to be not only a contributing but a direct cause of diarrhea, tremor, and rapid heart action—as direct as we find in any other seemingly immediate connection.

That we have now more than empirical grounds for inferences about the relation of auto-infection to the genesis of many of the derangements of functional nervous diseases is as well settled as any of the recent advances of pathology. In the processes of normal intestinal digestion it is claimed, on apparently well-ascertained facts, that the healthy system is constantly producing organic poisons, which are as capable of causing injury as any of the products of retrogressive metabolism in the body at large. We may therefore have specific disturbances occur from these organic poisons in either of two ways: First, by their excessive generation, or, secondly, by a failure in the normal functions of the body which are protective against them, from deficiency in the protecting functions of the organs themselves, or from a greater virulence in the poison generated than they can counteract. An effect from diet, therefore, in nervous disorders, one way or the other, would be explicable on chemical principles rather than on nervous textural changes, and, from my experience in the treatment of functional nervous diseases, I am becoming more and more persuaded that we have in this direction greater promise of progress, both in theory and in practice, than in hypotheses of irritative nervous lesions as the source of many functional disorders, Graves's disease included. On this point Dr. Fagge well remarks: "Some writers have endeavored to account for all the phenomena of the [Graves's] disease on a theory of irritation. But it is a sufficient objection to such a view that a primary irritation of a nerve center, lasting for months or years unchanged, is as yet unknown to pathology."

On the other hand we may say that, while a structural lesion in the medulla which would account for the phenomena of Graves's disease is almost inconceivable without its sooner or later involving all the vital functions of that seat of life, yet particular functional derangements produced by toxic agents are just what might be expected, for nothing is more characteristic than the narrowly selective operation of functional nervous poisons, which may go on for years, as in the case of opium, affecting certain functions without producing either progressive changes in them or extension to other functions.

The chief hindrance to committing ourselves to the toxic in distinction from the structural aetiology of such diseases is the considerable change which it involves in our views of the pathology of functional nervous diseases in general. It seems to offer too tempting, because too easy, a solution of many of the most obscure problems of practical medicine. That its advocates are often carried away by its far-reaching conclusions is undeniable, and many of their deductions are open to criticism on the score both of haste and of hobby-riding. But just the same may be said of bacteriology—namely, that it is too much like a blazing comet passing through the medical sky, with a nucleus of

fact surrounded by a cloud of seemingly mere gas, carrying a tail of still more tenuous inferences stretching out to infinity. We need not, however, surrender our nucleus of facts, nor legitimate inferences based upon them, because everything can not be demonstrated at once in a newly discovered field.

Certainly there is one fact in Graves's disease which points much more distinctly to a digestive disorder than to a structural nervous lesion, and that is its occurrence in women about ten times as often as in men. We can hardly imagine that this difference is due to a difference in the medulla between the two sexes. That the digestive apparatus in women, however, is subject to special disorders is notorious. Many years ago I published in the *Transactions of the Medical Society of the State of New York* the case of a girl who, after a suppression of the menses from a wetting in a thunder shower, had first an obstinate constipation, which was attributed by the late Dr. White, Professor of Obstetrics in Buffalo, and for a time also in Bellevue Hospital Medical College, to intestinal obstruction, as she had developed stercoraceous vomiting. In the further progress of her case, however, her bowels were made to act, but the dejecta showed a total absence of coloring matter. She then had sudden suppression of urine, which was soon followed by profuse salivation and lachrymation, but which stopped after five days, when the kidneys started secretion again, and this alternation between the flow from the bladder and from the mouth continued at intervals till her death, about three months after the beginning of her affection. Such a case, however, only illustrates in an extreme way what derangements in the secretions and in the chemistry of the products of the blood-making and of the blood-purifying glands can take place from nervous disorders in the splanchnic system of women, and hence renders the surmise probable that if auto-infection from the intestine can take place at all, it may be looked for in women with special frequency. I may mention, therefore, in this connection, that I have not yet seen a case of severe Graves's disease in which diarrhea was not sooner or later a prominent symptom.

On the other hand, it may be asked, if the symptoms of Graves's disease are to be ascribed to toxic infection of the blood by intestinal poisons, what relation has that fact to the common implication of the thyroid in this affection? To this it may be replied that the facts of both sporadic myxedema and the cachexia following thyroidectomy, in both man and in animals, point much more to a metabolic function of the thyroid than to a secreting one. It may be questioned whether such be not the main function of the ductless blood glands—that is, that they produce changes in the blood passing through them that may free the blood of otherwise toxic products, rather than that they add particular secretions of their own to it. The interesting experiments of Grützner seem to support this conclusion as regards the thyroid, for he found that the blood of an animal from which the thyroid had been removed, when injected into the veins of another animal, caused symptoms in it similar to those observed by Kocher in operative myxedema in man.

The phenomena of Graves's disease, however, are those of excessive action of the thyroid, rather than those of the contrasting symptoms of the thyroid atrophy; as if the gland were overstimulated by some ingredient in the blood which it can not sufficiently neutralize, for it is noticeable that the thyroid is found in many cases not so much diseased after death as that its proper tissue is apparently hypertrophied. Certainly it often seems so to act in these patients during life, presenting a variation in bulk which causes it to resemble an erectile tissue in its alternate enlargement and subsidence, so different from endemic or ordinary goitre. This appears to me a much more probable explanation than the view of Chevalier, who ascribes Graves's disease to an intoxication of the nervous system by products of the thyroid, because it is rather removal or atrophy of the thyroid which is most constantly followed by signs of an intoxication due to the absence of its preservative functions.

As to the relation of a meat diet to disorders of the thyroid, I will only cite for what they are worth some references to published observations. L. Breisacher, of Leipzig, finds that meat and meat extractives exert a poisonous influence on dogs after thyroidectomy. Ewald and Rockwell are quoted in Sajous's *Annual of the Universal Medical Sciences*, 1891, as finding the removal of the thyroid in pigeons to exert no perceptible influence on their health. They chose pigeons as pure vegetable feeders, to corroborate the earlier observations of Ewald, in which he ascribed the difference in the effects of thyroidectomy between dogs and rabbits to the difference in their diet. Charcot, in his lectures on Graves's disease, lays special stress on the benefit to be derived from a milk diet.

Now that examination of the urine includes so much more than tests for albumin or sugar or the proportion of urea, there is much to be hoped for in researches of its composition in cases of functional nervous diseases. The chemistry of the urine, however, is evidently not an easy subject either in health or in disease. The existence of alkaloidal poisons in it is very variously reported, but meantime there is no reason to be incredulous that much light is yet to be thrown upon the relation of toxic ingredients in this secretion to the clinical facts of a great variety of morbid conditions. As regards Graves's disease, I find a reference in Sajous's *Annual*, 1892, to researches by Boinet and Silbert, reported in the *Marseille médical*, who profess to have found three principal varieties of ptomaines in the urine of a case of exophthalmic goitre. One possesses a convulsive action and produces arrhythmia, weakens the systole and arrest of the heart in diastole, while another causes a primary increase in systolic energy and afterward enfeeblement and arrest in diastole. Such observations, however, of urinary ptomaines in disease are not yet sufficiently uniform or distinctive to claim much authority.

My treatment of Graves's disease is mainly based upon its supposed relation to digestive disorders. In the first place, it seems to me that a meat diet is to be as much restricted in these patients as a starchy diet in diabetics. Fresh, undiluted milk also is, in my experience, not to be allowed, from its indigestibility with most healthy adults. It is a significant fact that races like the Tartars, the Be-

douins, and the Guachos of South America, who have to live upon milk, have all found by experience that it has to be fermented first before it can become a staple and, as with them, about their only daily diet. All the world over the ferment for this purpose is the same—namely, the yeast plant. With fresh, good milk fermented every day, as it is by the Arabs and the peoples of western Asia, and now sold here pretty extensively under the Turkish name of matzoon, I have relieved more cases of vomiting from organic diseases of the stomach than by any other one article. In Graves's disease it has in my experience, as above mentioned, proved especially beneficial.

Medicinally, I think it is well to begin treatment by a mercurial purgative, as the ordinary blue pill, to be repeated occasionally from time to time. In some patients this will be found particularly useful against the diarrhœa. Then, three or four times a day, I prescribe in capsule five grains of equal parts of bismuth subcarbonate and powdered calumba, with four grains of salol and five of benzoate of sodium; or capsules of ten grains of bismuth salicylate with two of  $\beta$ -naphthol and two of ichthyol. The best time for these intestinal antiseptics to be taken is an hour after meals.

As a vaso-motor tonic, I now rely chiefly on ten-drop doses of tincture of strophanthus half an hour before meals.

## SMALL-POX

AND THE VALUE OF VACCINATION AS A PREVENTIVE.\*

By PEDRO JOSÉ SALICRUP, M. D.,

EX-MEMBER OF THE ROYAL SUBLEGATION OF THE BOARD OF HEALTH OF PUERTO RICO.

THE disease which constitutes the subject of my paper this evening has lost a great deal of its importance in this country by the persistent and careful practice of vaccination, made compulsory by law.

In spite of this, however, the disease makes its occasional appearance among the inhabitants of the crowded tenement-house districts, generally imported by emigrants from other countries. But the cases that occur are, as a rule, of the modified or mild variety of the disorder. In this city, as in many others in this country and in Europe, where they possess a well-organized board of health with ample means for the isolation of cases and disinfection, the epidemics are checked at the outset by the prompt and efficient measures adopted by the said boards. This is not, however, the case in many other countries where vaccination is not so generally and carefully practiced, sanitary measures are not properly enforced, and means of isolation and disinfection are deficient or altogether wanting, where the disease continues to be a dreadful scourge, carrying away many victims and leaving many others more or less injured and marked for life with its periodical ravages.

This is especially the case in tropical countries where people belonging to colored races are abundant, for whom this disease seems to have an especial predilection, and

\* Read before the New York County Medical Association, April 17, 1893.

who are generally very careless about cleanliness and sanitary measures and much prejudiced against vaccination.

In one of these countries (Puerto Rico) I have practiced medicine for twenty-two years; there I made my first acquaintance with the disease, in the treatment of which I have had a rather extensive experience. I have also in my capacity of public vaccinator, which office I held there for many years, practiced vaccination extensively by direct inoculation with bovine and humanized vaccine virus, and from arm to arm, and can testify to the beneficial effects of this operation in the shortening of epidemics and rendering subsequent ones less severe, especially since the facilities for obtaining pure and reliable vaccine virus have been increased by the foundation of an institute for the cultivation of bovine vaccine virus to supply the country.

I am sorry, Mr. President, not to be able to produce some statistics which would prove my assertion and make this paper interesting, but I could not procure them in the short time at my disposal to prepare this paper.

I do not pretend to bring to your notice in this paper any new facts in connection with the disease, but simply to call your attention to the severity which its epidemics still have in many countries, especially the West Indies, and to make a plea to bacteriologists and workers in the field of infectious diseases in favor of research and investigation of the causes and pathogenesis of this disease, which has been little attended to, with the object of finding, if possible, a more efficient measure to prevent its occurrence, either by devising other means of producing immunity from it or devising new means of treatment in man, or by improving the present measure of preventive inoculation, "vaccination," having more extensive and precise knowledge of the germ which causes it, and its habits and peculiarities, as is the case in other diseases of the kind.

The history of small-pox dates from very far back. It is said to have existed as a scourge in China and Hindostan one thousand years before the birth of Christ, and to have made its way through Arabia and Egypt into Europe, where it was introduced by the crusaders. It was unknown on this continent before the arrival of the European conquerors and new settlers, who imported it into this and other newly discovered lands. It was a much-dreaded scourge all over the world until the wonderful discovery of Jenner in 1796 came to deprive it of a great deal of its horrible and deadly character in countries where this operation is regularly and persistently practiced. The discovery of Jenner was met by a great opposition at the beginning among a number of practitioners and lay people, and even at the present time organized anti-vaccination societies are in existence in England and other countries to attest what prejudice and ignorance can do even with the most useful and successful discoveries in our art.

I will not tire you by giving a minute and elaborate description of the disease, its clinical history, etc. I will simply make a hurried sketch of the disorder, its varieties, and different stages, making some remarks on its complications, sequelae, and treatment, with reference to my ex-

perience with it in the different epidemics which I have observed in Puerto Rico.

Small-pox or variola is a contagious and infectious disease of the blood, characterized by a peculiar eruption of the skin and inflammation of the mucous membranes of the body, accompanied by fever.

According to the present views, like all other infectious diseases, it ought to be caused by the introduction into the body of some kind of microbe or germ which, by its presence in the blood, produces the poison, toxalbumin or toxin, which gives rise to the grave symptoms and general dyscrasia of the blood sometimes observed. But so far bacteriologists have not found any special germ, and only the common pus coccus has been found in the pustules.

The first cases of variola that appear in a locality can always be traced to contagion if properly investigated, and the disease has always a tendency to spread as an epidemic if not promptly checked by appropriate means.

It is often preceded by other exanthemata, especially measles, and whether there is any relation between the agents causing these diseases or whether it is owing merely to the epoch of the year at which they occur being favorable for their development in the human system, I am not prepared to say. As to its primitive origin, some authorities believe that it first originated in the horse and cattle and from thence was acquired by man, and others hold the opposite view. Variola is most conveniently divided, in regard to its severity, into *benignant*, *malignant*, and *modified*; as regards distribution of the eruption, into *discrete*, *semi-confluent*, *confluent*, and *corymbose* or clustered.

The course of the disease is generally divided into five periods or stages, which indicate the different phases which the disease assumes before its termination, as follows: *Incubation*, *invasion* or *primary fever*, *eruption*, *secondary* or *suppurative fever*, and *incrustation* and *decrustation* or *desquamation*.

In the modified variety all these stages are not perfectly developed, and so we will take a typical case of true variola for our description. The period of *incubation* includes the space of time which intervenes between exposure to the affection or contagion and *invasion* of the disease. This period may be shorter or longer according to the severity of the case to follow, but the limit generally assigned to it by most authorities is from five to twenty days. There are no appreciable symptoms in this stage.

The period of *invasion*, or primary fever, is marked by symptoms which indicate serious constitutional disturbance. It commences with lassitude, chills, pains of the head, loins, and limbs, and hot skin. Conjunctivæ suffused; rapid pulse and respiration. There are thirst and loss of appetite, with a white and coated tongue, dotted with red papillæ, nausea, and often vomiting, constipation, pain and heat in the epigastrium, restlessness, and general prostration. To this may follow oppression of breathing, cough, lethargy, and in some cases delirium and coma. The tongue, which at the beginning of this stage was white, becomes red, the change beginning at the point and extending subsequently over its whole surface. In children convulsions frequently occur. There is an exacerbation of febrile symptoms to-



ward night. These symptoms vary in intensity in different cases according to the confluence or discreteness of the ensuing case, being more severe in the confluent and malignant types, especially vomiting. The disease may, and sometimes does, terminate in death in malignant cases in this period.

The symptoms of invasion generally last forty-eight hours in ordinary cases of discrete and semi-confluent eruption, and only twenty-four in confluent and malignant cases, in which the eruption appears on the second day. The symptoms of this period may be complicated with violent and often fatal inflammation of the brain or internal organs, and in the malignant type the dyscrasia of the blood is such that the patient may die before the eruptive stage begins.

These symptoms very much resemble those of a severe cold or those of invasion of other infectious diseases, especially yellow fever, and it is very important to be able to make early a differential diagnosis to relieve anxiety and for other purposes, especially when the patient happens to be a foreigner, as they entertain a peculiar dread for yellow fever, which proves most fatal among them, while variola is more fatal to individuals of color races. Although a differential diagnosis is not always possible in these cases, the early presence of vomiting and the peculiar appearance of the tongue may help in the diagnosis of small-pox, as other symptoms are common to both.

To the period of invasion the period of eruption follows. With the outburst of the eruption all the febrile and other symptoms suddenly and immediately disappear, and the patient feels comparatively comfortable. The eruption generally begins to appear on the forehead and lips, and extends gradually to the rest of the face, neck, arms, trunk, and inferior extremity, and the same order is followed in all its stages of development. It first develops as red spots (*maculæ*), which soon become prominent, giving a hard feeling to the touch (*papulæ*). In the discrete variety they are scattered over the body and are distinct in character. In the coherent variety they resemble the patches of rubella by their appearance in patches, and in the confluent variety they are close together and so numerous as to diffuse a hardness over the surface. These papules by the second day of eruption (fourth of invasion) become raised in small conical pimples with an inflamed base and transparent vesicular point. They continue to increase to the fifth day of eruption and gradually pass from a conical to a flattened and umbilicated form. This form is often apparent in the vesicles from the third day. Their contents, from being transparent, become opaque and milky, and by the sixth day are converted into pus (pustules), and by the eighth day suppuration is well established. The fever, which had disappeared with the outburst of the eruption, reappears; considerable pain and redness of the skin and great tumefaction and a distressing sensation of tension of the integument occur. The eyelids are swollen and œdematous, completely burying the eyes, and the nose and lips are enormously swollen in some cases.

While these changes are taking place in the skin similar changes occur in the numerous membranes; the mucous

membrane of the mouth and respiratory passages is greatly inflamed, as shown by the presence of oppression of respiration, cough, and sore throat. The alimentary canal sympathizes with the general irritation, as shown by the accompanying diarrhœa. The conjunctive participate in the inflammation, and in this locality, as in the air passages, pustules form, which, if not properly attended to, cause ulceration and subsequent opacity of the cornea, or staphyloma, with partial or total loss of sight.

In some very malignant forms of this disease and in cachectic individuals hæmorrhages occur in the vesicles and pustules, constituting what is known as hæmorrhagic variola, or *variola nigra*; and in other cases still severer and always fatal, the eruption does not develop in its different stages, but subcutaneous hæmorrhages take place, giving origin to ecchymoses or petechiæ, which are accompanied by other severe symptoms of decomposition and loss of plasticity of the blood, which is deficient in fibrin.

In other cases an arrest of development of the vesicles and pustules occurs with absorption of their purulent contents, which results in death. The period of suppuration is accompanied in mild cases by moderate delirium, but in semiconfluent and confluent cases the symptoms assume a low typhoid type; there are restlessness, a hard cough, and hæmoptysis, and in some cases hæmaturia, accompanied by other dangerous symptoms.

This period, I have observed, can be materially shortened and its symptoms made less severe in ordinary cases by the practice of opening or cutting the pustules and expression of their contents when they are ripe.

Desiccation ordinarily begins from the eighth to the ninth day, and is indicated by the subsidence of the tumefaction of the skin and drying up of the pus and purulent discharges produced during the preceding period. It begins at the face, and crusts are often present in this region before pustules are fully matured in the trunk and extremities. This stage is sometimes prolonged, especially in the lower part of the trunk, where pressure has been exerted by lying where clusters continue to suppurate for a long time, and in places where the skin is thick, as on the palms of the hands and soles of the feet.

Decrustation or desquamation commences generally from the eleventh to the fourteenth day of eruption, and the skin below is of a deep-red color, retaining this hue for some weeks, and the newly formed epidermis is thrown off by repeated desquamation.

The cicatrices become deeper as the swelling disappears. In the confluent variety the crust remains adherent to the face for ten or twelve days, and in places where the skin is harder, as in the palms of the hands and soles of the feet, where pustules do not develop well, the whole thick epidermis is cast off in a piece, leaving the newly formed epidermis very delicate and tender, preventing the patient from walking for a long time in some cases.

The process of desiccation is accompanied with severe itching which induces the patient to scratch, often tearing the surface with his nails and causing hæmorrhages in the ulcerated surfaces and blackening of the pustules. It is also accompanied by a nauseating and offensive odor, un-

bearable if proper means of disinfection have not been applied from the beginning of treatment.

Some changes have been observed in the urinary secretion in relation with the various stages of the disease as to its amount, existence in it of albumin, or excess of its normal constituents.

During an epidemic some cases occur in which the symptoms of the stage of invasion make their appearance with great intensity, and the disease abates with the remission of the febrile symptoms, no eruption appearing on the skin or mucous membrane. These cases are known as *variola sine variolis*.

Many complications may occur in cases of small-pox which may cause to prove fatal a case which appeared to be progressing satisfactorily, and they may occur at any of the five stages already described, and may have for their seat the blood, nervous system, the mucous or serous membranes, the eyeballs, tongue, and cellular tissues. The stage of invasion may be very severe, the fever may run very high, the pain in the head, chest, and loins may be so severe that it may lead to the suspicion of inflammation of the organs situated in those regions, and delirium, convulsions, and coma may occur, giving a dangerous and perhaps fatal character to the case, as has been already said.

During the period of eruption serious congestion of the internal organs may ensue, and grave symptoms from the brain, spinal cord, and the lungs in the shape of convulsions, bronchitis, pneumonia, and pleurisy. The mucous membrane of the alimentary canal may be inflamed and thus give rise to diarrhoea, dysentery, or hæmorrhage of the bowels, and many other complications may occur to which reference has already been made.

As sequelæ of small-pox many secondary affections may be developed, especially in cachectic individuals, as a consequence of variolous inflammation. Such are chronic inflammation of the various mucous membranes, producing otitis, deafness, ophthalmia, opacity of the cornea, staphyloma, ulceration of the cornea, œdema of the glottis, hæmoptysis, pulmonary tubercle, chronic bronchitis, pneumonia, pleurisy and empyema, chronic diarrhoea and glandular enlargements, caries of the bones of the face, subcutaneous abscesses, furuncles, erysipelas, gangrene of the skin and genitals, diseases of the joints, menorrhagia, hæmaturia, abscess of the kidney, miscarriage, and many others.

I must remark, however, that I have met in practice with some few persons who previous to the attack of the disease had enjoyed poor health, constantly suffering from skin diseases, asthma, and other infirmities, who after a severe attack of confluent small-pox have got rid of their troubles and enjoyed very robust health. In these cases the disease seems to have had a purifying effect on the blood of those individuals (but yet I would not advise any person suffering from those infirmities to expose himself to the contagion of variola).

I will not occupy your valuable time by speaking of the diagnosis and pathology of the affection, for the latter varies according to the complication that causes death, and does not generally throw any light on the point we want to discuss,

and will therefore only mention the treatment which has been suggested in the different stages of this disease, and the plan which I adopted in regular cases, with the variations which the symptoms required.

Various ectrotic methods have been suggested and employed at different times to arrest the development of the eruption and avoid subsequent pitting. The most adopted have been cauterization of the vesicles after removing their apex with a stick of nitrate of silver (this is impracticable in semi-confluent and confluent varieties, and is dangerous and painful). Another is the application of sulphur ointment to the entire surface of the skin; another the application of a mercurial ointment also to the surface. Others consist in covering the face, or part of the whole surface of the body, with some impermeable material, as gold or silver leaf, tissue paper, different plasters, or, better, with collodion, so as to prevent the access of air.

I never used any of these methods, because many are impracticable and painful and all dangerous, as the arrest of the development of the eruption proves in most cases fatal. As to internal medicines, many have been used to meet the different symptoms as they appear, but I know of no special drug that has had any constant good results. In the uncomplicated and benign form of the disease no special treatment is necessary but the attention to the general rules of cleanliness, ventilation, and general hygiene. In complicated, confluent, and malignant ones every indication should be promptly met with the proper means, and great care has to be exerted as to cleanliness and therapeutic treatment.

I will mention the simple plan which I adopted in the majority of cases which seemed to prove successful in most of them, even in many that were expected to prove fatal when I was first called to attend the patients.

If I saw the patient at the very start of the stage of invasion, I used to prescribe a dose of calomel (proportionate to the age and sex of the patient), followed four or five hours after by a saline purgative or a dose of castor oil; after the effects of the purge had passed I almost always observed a relief in the congestive symptoms, and ordered the patient to be sponged all over the body with a tepid weak solution of carbolic acid (two per cent.) the moment the first symptoms of the eruption began to show themselves. As an internal medication I prescribed a mixture containing carbonate of ammonium, chlorate of potassium, and saline mixture to take all along. When the swelling of the skin began I used to prescribe the external application over the whole surface of glycerin with essential oil of peppermint, which is, like other aromatic plants, a powerful disinfectant and germicide, in the proportion of two or three drops to the ounce. This I always found to greatly subdue the swelling, and seemed, in conjunction with the rest of the treatment, to exert a modifying influence in the development of the eruption. When the pustules were fully ripe I advised them to be cut with scissors, and, after pressing well their contents and washing with a weak solution of carbolic acid and hyposulphite of sodium, smear the whole surface with the glycerin and peppermint-oil mixture.

In nearly all cases that I could fairly treat with this

plan the disease proved more manageable than in others; no bad odor ever originated from the patients, and they all recovered in shorter time and with less pitting than in those I was called to attend when the eruption was more or less developed.

Besides these therapeutical means, attention was directed to hygienic measures and appropriate feeding.

The room was as well ventilated as possible, kept rather dark, and all disturbing influences made to disappear as much as possible.

Some of the symptoms that accompany the stage of invasion may assume such a severe character as to require special medical treatment. The pains in the head and limbs and especially in the loins (which is considered as a pathognomonic symptom, and I have noticed that its severity is proportionate to the severity of the attack) may be so severe that the patient yells out for relief, and external revulsion and injections of morphine have to be used to relieve them. When the eruption is tardy in its appearance the symptoms are very much intensified and the mucous membranes much congested, and measures have to be adopted in the shape of diaphoretics and warm bath and revulsives, which last promptly act in bringing it out.

Wherever a mustard plaster or blister is applied the eruption promptly appears in a confluent form, and one of the best means to limit it is the application of a number of blisters to the limbs and trunk, as the eruption in these cases does not appear anywhere but in the place of the blisters.

This method works well in some cases; but sometimes it is very difficult to heal these blisters, which continue to suppurate for a long time, and even gangrene of the skin supervenes in them and deep and extensive cicatrices follow.

When typhoid symptoms appear in the suppurative stage stimulants of all kinds have to be freely used, carbonate of ammonium, cinchona, and alcohol being the most useful, and every complication has to be met with the appropriate therapeutical means.

Cases of the disease among intelligent and well-to-do people are more successfully treated than among the poor, as with the former ample means of ventilation, seclusion, and other sanitary surroundings are easily adopted, while among the latter these means are very deficient or totally lacking. I have attended cases of both kinds, but it has been my lot to attend during several epidemics hundreds of cases among the poorer and most ignorant classes, especially of the colored class, in which great prejudice existed against all therapeutical measures, and absolute absence of all sanitary surroundings and material means of every kind. I had to contend with all these drawbacks and to do the best I could with the scarce means at my disposal.

Small-pox has become endemic in Puerto Rico and is raging probably all the year in one or another of the twenty-eight towns which form the island.

Epidemics have a very severe character, and every year hundreds of victims are carried away by this disease. Nearly forty per cent. of the inhabitants bear marks of having had the disease in a more or less severe form, and many suffer from partial or total blindness and other sequelæ of it, especially among the colored part of the population.

Sanitary measures are very imperfectly carried on there, and when an epidemic attacks a city or town and after it has made considerable progress, temporary hospitals are built which are really more centers of infection than anything else, as they lack every facility for the proper treatment which a hospital should have.

Only poor patients are compelled to go to such hospitals, and you often find severe cases in the most pitiful condition of abandonment and filth in the very center of a town where well-to-do people inhabit, and on the ground floor of their houses, in a small room without any means of ventilation, where five or six other sound persons sleep. And these constitute the majority of the cases which I have been called to treat.

*Vaccination.*—The efficiency of the preventive power of vaccination is proved by the facts of the almost total disappearance of the disease in countries and cities like this in which vaccination is persistently practiced in conjunction with isolation of cases at their start and other sanitary measures. But that by itself it does not afford such perfect protection from an attack of the disease as it was at first enthusiastically believed, is also proved by what happens in countries where sanitary measures are defective and isolation of cases not opportunely practiced. Persons who have been successfully vaccinated, if exposed to contagion, are sometimes attacked by the disease in its worst form and even killed by it; but, fortunately, this is the exception, the rule being that those properly vaccinated when exposed to the contagion only suffer from the modified variety of the affection.

The protective agency of an attack of variola against subsequent invasions of the disease being known from an early period of medical history, and with the purpose of obtaining this protection, the inoculation of variola was practiced as far back as 1673 in Constantinople, and the practice introduced into England; thence it extended to the continent of Europe. But this inoculation, which generally caused a mild attack of the disease, sometimes produced serious symptoms, which often culminated in the death of the inoculated person, and it was substituted by the more innocent method of vaccination, when this discovery was made by the immortal Jenner.

Jenner was acquainted with the occurrence of a disease in the cow, called vaccinia, characterized by the appearance of pustule in the teats and udders of these animals, which very much resembled the pustule of small-pox. He observed that the men who milked and handled cows affected with the disease had a similar eruption developed in their hands and arms, and that they enjoyed a remarkable immunity to the invasion of variola. On this observation he founded his great discovery, and the first experiment with vaccination with cow-pox was made by him on the 14th of May, 1796.

I have already alluded to the opposition he met with among his contemporaries and which his method still meets with among many prejudiced persons, but the value of the method is at present recognized by the generality, and is practiced with good success all over the civilized world.



The short space of time allowed for the reading of this paper does not allow me to give the subject of vaccine and vaccination the attention which it deserves, and I have to limit my remarks to the most essential points in connection with it, passing in silence others that I would like to make the subject of discussion this evening.

Among the many arguments that have been raised against vaccination, and one that yet stands in the minds of many, is the possibility of inoculating other constitutional diseases existing in the blood of the person who supplies the virus when the humanized one is used, and another is the possibility of causing infectious diseases of the blood by using impure or decomposed virus.

To the first it may be answered that the small-pox pustule, although no peculiar germ has yet been discovered and described by bacteriologists, may be considered as a pure culture of the poison or germ that produces the disease, and, if only its contents are used for inoculation, no danger exists of anything but vaccinia being inoculated. It may be and is considered by some as possessing always its peculiar characteristics, no matter what the nature of the constitution of the individual in which it grows or develops. And so far no facts have been brought to clearly prove the occurrence of the communicability through vaccination of any other disease, provided the operation has been well performed without unnecessarily mixing the blood of the giver and recipient of the virus when the operation is performed from arm to arm.

The use of bovine virus has done away with this objection in a great measure. To the second objection, or the possibility of causing blood poisoning by the introduction of putrid substances in the blood (which accident may often happen, and I have seen a case of such blood infection with severe symptoms of inflammation and infarction of the lymphatic system of the arm operated upon, threatening mortification and endangering life, after inoculation with bovine virus), it may be answered that, with proper care in the selection of the virus employed, trying to use fresh virus always when possible, no fear need be entertained of such accidents happening.

As to the process of development of vaccine, and the way and different methods of practicing the inoculation, I will not speak, not to keep you longer.

I will only remark as to the method of practicing the operation that it is well that every one should adhere to the process which yields him the greatest amount of success, and that I believe that the more bloodless a method the safest it is for the individual inoculated and the success of the operation.

Time does not allow me to be more extensive on this important subject; but if my remarks can bring forth a discussion on the subject by the more competent men present here and those invited for the purpose, the object of my paper will be fulfilled, and I shall not have tired you with my long paper.

**The New York Academy of Medicine.**—At the next meeting of the Section in Surgery, on Monday evening, the 12th inst., Dr. W. W. Van Arsdale will read a paper on The Treatment of Granulating Wounds.

## THE PERITONÆUM.

By F. BYRON ROBINSON, B. S., M. D.,

CHICAGO.

THE peritonæum is a great serous, lymphatic sac. Embryology, physiology, and comparative anatomy have shed a flood of light on the peritonæum and its development during the last decade.

Embryology and comparative anatomy have enabled investigators to demonstrate that most of the parietal attachments of the peritonæum are acquired. The only possible method by which a student can realize the peritonæum and its relations is by means of embryology and comparative anatomy. He must watch the development of animals; he must catch up the thread as it courses through evolutionary processes.

Comparative anatomy seems to show that man has proportionally the least amount of peritonæum of any of the mammals. Actual dissections would appear to show that the peritonæum decreases as the scale of animal life ascends. The peritonæum of the ape differs but little from that of man, but passing to the lower monkeys, some difference arises, especially in regard to a mesoduodenum. The dog possesses a very large mesoduodenum. In the horse and ox the cæcum is very large and free, floating in the peritoneal cavity. The cæcum of the ox will hold gallons, and no doubt is the vestigial remains of an ancient stomach. Herbivorous animals have a liberal peritonæum, as such animals, from the nature of their food, possess a long digestive tract. Their abdominal cavity is broad and the extensive viscera require liberal coverings.

The abdominal cavity of carnivora is short and narrow, and the digestive tract is also short, which accords with the nature of their food. The peritonæum of the carnivora, though more liberal than that of man and ape, is relatively less than that of the herbivora.

If one could conceive of the abdominal cavity entirely empty and its walls lined by a membrane, and then imagine the various viscera budding out from the dorsal parietal wall until they are partially, or almost wholly, enveloped by the folds of peritonæum, it might aid in understanding the complicated arrangements of this membrane.

It is quite useless to attempt to understand the peritonæum as it appears in the adult. It is only through evolutionary processes that the peritonæum becomes intelligible. From an embryological standpoint the peritonæum passes through vast changes. Two special points should be noted in these changes which make the folds of the peritonæum difficult of comprehension. One is the rotation of the loop of the intestines which is fed by the superior mesenteric artery. The rotation is from left to right. The rotation of the intestinal loop over half a circle makes the *vasa intestini tenuis* come off from the left side of the superior mesenteric artery in the adult, while in the embryo before birth the *vasa intestini tenuis* pass from the right side of the superior mesenteric artery. This rotation also drags on parts of the peritonæum and thus entirely changes its original relations—*e. g.*, the duodenum has had its peritonæum entirely drawn from its posterior

surface while the cæcum becomes entirely covered by peritonæum.

A second point which changes the embryotic peritonæum and complicates its folds is the unequal growth of organs. Take, for example, the appendix and cæcum. The appendix, from an evolutionary standpoint, is fading out of existence. The cæcum grows to be a vast receptacle in man and in many mammals, such as the ox and horse. Originally the appendix always had a mesentery, but in adult life it is often found robbed of its peritoneal cavity. The growing cæcum steals away the appendicular mesentery and appropriates it to cover its greater surface.

Again, the liver changes the original peritonæum. At birth the liver and Wolffian body are the two chief organs, and almost fill the entire cavity. In extra-uterine life the liver rapidly lessens in size; the other organs increase in size, and thus the peritonæum is changed in its relations. Rotation of the great intestinal loop and the unequal growth of the viscera change the entire peritoneal attachments, except the original mesentery of one half of the transverse and descending colon. And even this original mesentery is pushed from the original middle line to the position of the adult on the left side.

The great omentum comes from a complicated process in which the stomach rotates half a circle from left to right. This rotation leaves the left vagus lying on the anterior surface of the stomach and the right vagus lying on the posterior surface of the stomach. The stomach also makes a spiral twist on itself, which aids in producing the great omentum.

The use of the peritonæum in the economy of animal life is very important. Its first and foremost use is to prevent friction. It allows viscera to move on each other, to alter their size, and change their condition without destroying their integrity. The peritonæum should be viewed as a distinct joint membrane. It has all the characteristics of a joint—viz., a synovial membrane, muscles to move it, and nerves to induce action and sensation. The peritonæum resembles the pleura, the pericardium, and the meninges. It is, in fact, a synovial membrane. The peritonæum, like the pleura, pericardium, meninges, and serous membranes of joints, is liable to similar diseases—*e. g.*, inflammation and tuberculosis.

The second use of the peritonæum is to anchor organs in the abdominal cavity. It limits the movements of the viscera so that they do not get entangled. If the anchorage of the viscera becomes defective, disaster soon follows. If the mesentery is elongated, volvulus is liable to occur, and no inguinal or femoral hernia can arise without an elongated mesentery. Should a tubule of the parovarium enlarge, its anchorage or mesentery would be changed, and about twelve per cent. of such tumors rotate on their axes.

The anchorage of the peritonæum divides itself into that of (a) mesentery, (b) ligaments, (c) omenta. A mesentery is a double fold of peritonæum which attaches a portion of the digestive tract to the dorsal parietal wall. Besides holding the intestines to the parietal wall, the mesentery transmits veins, arteries, lymphatics, and nerves to the intestines. The mesentery of the small intestine covers

all the gut except about one sixth of an inch. The mesentery of the large gut covers the entire gut except from half an inch to four inches.

Treves noted in the examination of one hundred fresh bodies that a mesentery was found thirty-five times in one hundred cases on the left side, and twenty-five times in one hundred cases on the right side.

The French surgeon Amussat made his great reputation by doing colotomy without opening the peritonæum. He must have met with cases with no descending mesocolon. He did his first noted operation on a princess, who recovered. The reason there is a mesentery oftener on the left side than on the right is because the left mesocolon is the original mesentery of embryological life, while the right mesocolon is entirely acquired.

It is very evident that the old surgeons who reported extraperitoneal colotomy penetrated the peritonæum, consciously or unconsciously, in performing colotomy. It is frequently asserted that one can approach the appendix extraperitoneally, but any one can take the anatomical liberty of flatly contradicting it, for it can not be done. The writer has examined many cæca, and each and every one was entirely covered by peritonæum.

A peritoneal ligament is a fold of peritonæum which holds solid organs to the abdominal wall—as the liver, uterus, and bladder.

An omentum connects the stomach with some other organ—as the liver, spleen, and colon.

A third use of the peritonæum is to check the invasion of infection. A whole volume could be written on this practical subject. It is probable that by evolutionary processes man's peritonæum checks infectious invasion by throwing out an exudate to stop the enemy. The exudate rapidly surrounds the pus, and in many cases encapsulates it forever. It is a very curious fact that the peritonæum will tolerate any quantity of pus on the outside surface, but the moment the interior is invaded by one drop, inflammation rapidly spreads. Another curious fact in regard to the peritonæum is that it is so elastic that it can be stretched to enormous dimensions if the stretching is effected gradually.

A fourth use of the peritonæum is to repair damaged viscera. The writer's experiments on dogs have proved that in gunshot wounds a piece of omentum will actually repair a hole in the gut.

A point of interest in regard to the peritonæum is that the part of the peritonæum which invests the viscera is chiefly supplied by the sympathetic nerve. The pain is therefore generally of a dull, aching character, while that part of the peritonæum which lines the anterior parietal surface of the abdomen comes in close contact with the ends of the (spinal) intercostal nerves. This portion of the peritonæum, when inflamed, is accompanied by sharp, cutting pains. There is no doubt that by the decreasing of man's peritonæum he is rapidly escaping disease of this sac.

The extensive liberal folds of peritonæum existing in the lower mammals must induce disease. Experiments would show that the resistance of man's peritonæum is much greater than is that of animals.

Among animals the hog would rank first, then the ape and the monkey. From a large number of operations on the peritonæum of dogs the writer can state that the resistance of the peritonæum of the dog is about the same as in man. Veterinary surgeons tell me that the peritonæum of the horse is very liable to fatal inflammation; but that may be from inability to control the conditions of a sick horse.

So far as the writer can state, the resistance to disease in the peritonæum of mammals does not vary much. Again, the writer has observed for some time that peritonitis in male and female is about equal in amount. The aperture in the female peritonæum from the Falloppian tube is responsible for a large percentage of peritonitis in the female. This is, however, about balanced by the excessive amount of hernia and appendicitis in the male.

The peritonæum is highly supplied by a vast number of nervous filaments, both spinal and sympathetic. The reflex action on distant organs is profound through the sympathetic.

A fifth use of the peritonæum is as an absorbent. It will rapidly absorb fluids. The writer has often filled the abdomens of dogs with water and closed the wound. For two or three days the dog would urinate frequently and profusely, but recover well.

In one of my cases of repeated rupture of ovarian cysts, in a woman of twenty-four, profuse urination was observed at the time of the rupture of the ovarian cyst.

*Conclusions.*—1. The utility of the peritonæum is to prevent friction.

2. It supports the visceral organs and connects them to the abdominal wall, and thus prevents entanglements and dislocation. Normal peritoneal supports do not allow hernia or volvulus.

3. It transmits veins, arteries, lymphatics, and nerves to and from viscera.

4. It checks the invasion of infection.

5. The peritonæum should be viewed as a joint cavity.

6. It is an absorbent lymph sac.

7. Man, having proportionally the least peritonæum, is the least liable to disease in it.

8. It repairs damaged viscera.

9. Its reflexes are the most profound on the distant organs.

10. In peritonitis the thighs are flexed on the abdomen, in order to relax the psoas and iliacus muscles.

## NITRATE OF STRYCHNINE IN ALCOHOLISM.\*

By J. BRADFORD MCCONNELL, M. D.,

PROFESSOR OF PATHOLOGY AND ASSOCIATE PROFESSOR OF MEDICINE,  
UNIVERSITY OF BISHOP'S COLLEGE, MONTREAL.

In *Merck's Bulletin* for August, 1891, a brief notice of Dr. Portugalow's experience with the nitrate of strychnine in dipsomania is given. He professed to have cured four hundred and fifty-five cases, and asserts that he knows of

reliable and specific remedies for two affections only—strychnine for the various forms of alcoholism, and quinine for malarial fever. He used a solution of six decigrammes in fifteen grammes of distilled water, giving a half to a quarter of a gramme hypodermically once or twice daily, ten to sixteen injections completing the treatment. Similar results were obtained by Dr. W. N. Jergolski and others in Russia, Germany, and Italy.

That strychnine, cocaine, atropine, capsicum, cinchona, and other nerve tonics had been employed with advantage in alcoholism is a fact generally known, but that such brilliant results could be obtained by such a well-known remedy as strychnine, properly administered, filled a gap in the therapeutics of a disease with which hitherto medication had mostly been fruitless, and which could only be regarded and hailed with grateful appreciation by the general practitioner, who could hitherto do so little for this by no means small class of afflicted humanity.

I have treated during the last fifteen months some thirty cases, twenty-five of whom received the full course of injections. The results will, I think, demonstrate what benefit we can obtain from it in this form of narcomania. Due attention was paid in each case to the associated derangements and the constitutional peculiarities. The patients all came to the office for treatment, and, although recommended to abstain from further drinking, were allowed to take liquor if they desired it. The dose given subcutaneously varied from a thirtieth to a sixth of a grain twice daily for ten days, then once daily for ten days, the highest dose being reached about the third or fourth day, and continued to the close of the treatment, this being nearly in accordance with Spitzka's experiments, that to maintain its action the doses of strychnine must be in the beginning increased, and later the interval increased and the doses lessened. The border line of tolerance was reached in most cases when one gramme was used of a solution containing twelve centigrammes of strychnine nitrate to fifteen grammes of water—that is, about two fifteenths of a grain. Internally, cinchona, peroxide of hydrogen, and capsicum were frequently prescribed in combination. When bromide of sodium failed to procure sleep, paraldehyde always succeeded. In the later cases strychnine in doses of one twentieth of a grain, with elixir of phosphates and calisaya together, was ordered to be taken once or twice daily for four or five weeks after ceasing the injections.

The following brief reports of each case are condensed from the notes taken in detail during the progress of the treatment.

Two solutions were used—one containing six centigrammes to fifteen grammes of water, and in the later cases one of double the strength, equal to two grains to the half ounce. The weaker solution was used in all cases unless where the stronger is mentioned.

CASE I.—November 10, 1891. Insurance agent, aged fifty; has used alcohol since twelve years of age and to great excess for twenty years, and more or less continually during the last four years. Marked family history of alcoholism. Patient is small in stature, emaciated, tongue thickly coated, tremulous; has had very little sleep for a week.

\* Read before the Medico-surgical Society of Montreal, February 17, 1895.



Gave a purgative and bromide of potassium.

On the 11th began the injections, giving half a gramme twice daily. He states that usually after a prolonged spree, during the first two or three weeks of abstinence he suffers from cramps in the limbs, and for four years has had night sweats. Had no cramps after first injection, and claimed to have no desire for liquor after the first day. At the end of the first week of treatment he showed remarkable improvement in every respect; had ravenous appetite, slept well, no depression, and sanguine as to the virtue of the treatment. During the second week had one injection daily. When the treatment ceased he then professed to enjoy as good health as ever before; he reported from time to time the entire freedom from desire for liquor, and remained so for eleven months, during which time he had no regular work. Having got a situation, after his first pay he ventured a glass of liquor, when the ardent crave was rekindled and a prolonged debauch followed.

CASE II.—Molder, aged fifty; is a strong, robust man. No family history of alcoholism or other neurosis. Received a blow on the forehead about thirty years ago, where a depression still exists; began his drinking habits after that; has drank hard during the last fifteen months, and is now imbibing all he can procure—sometimes forty glasses of liquor daily.

Had two injections twice daily for a week; took no liquor after the first day, and after second day claimed to have no desire for liquor. He became ill with *la grippe*. Having received ten injections, I heard from him four or five months after, and learned that he had not up to that time partaken further of spirituous drinks.

CASE III.—Insurance agent, aged forty-six; has a neurotic family history, there being cases of alcoholism and insanity. Has drank steadily for thirty years. I requested this patient to drink all he wished during the treatment. He was poorly nourished, not having the means to properly maintain himself, owing to his habits.

Drank twenty glasses of ale the first day of treatment, the number diminishing daily until the end of the first week, when his desire ceased. At the end of the second week he appeared free from the drink crave, and had improved very much in his physical condition. At the end of two months he again resumed his drinking habits; his relapse was attributed to his unwillingness to give up his lifelong habit of ale at meals.

CASE IV.—Advocate, aged forty; has drank inordinately for about ten years. No hereditary cause; attributes the acquirement of the habit to the treating custom; suffers from gastritis, with morning vomiting and sleeplessness; gave sodium bromide and calumba and parvules of calomel, one twentieth of a grain every hour; gave first injection December 17th; found a tonic effect after first injection; no vomiting after next morning; took liquor daily until 25th; none after. All the catarrhal symptoms disappeared after the first week of treatment, and also the desire for liquor. Ceased the treatment on January 1st, patient feeling quite restored; in a couple of months he had relapsed into his old condition.

December 26, 1892.—Came to have another course of treatment, having confidence in its power to relieve him of his desire for alcohol. The gastric symptoms were predominant; the strong solution was used, beginning with five decigrammes, and increasing daily until ten were reached; gave two injections daily for ten days and one daily for ten days longer. After the fourth day the gastric symptoms were quite relieved and the desire for drink was gone. Attempted a glass of wine a day or two after, but found it flat and distasteful while taking two full doses daily. On two occasions noticed for a few minutes involuntary contraction of upper limbs. Since end of first week appetite and digestion have been good, and he professes to feel

better physically and mentally than for months. He, however, will not consent to total abstinence for the future, which to those who can only drink immoderately is the only remedy.

CASE V.—Printer, aged forty, single, a drunkard for about twenty years. No hereditary predisposition. Accustomed to be off work two or three days each week. Began treatment December 30, 1891, the ordinary solution; had no desire for alcohol after first injection, recovering in a week his accustomed health. On inquiry, I find he remained well for eleven months, when he again resumed his drinking habits.

CASE VI.—Painter, aged fifty, has drank spirituous liquors since eighteen years of age; father was a hard drinker. He can not sleep; has no appetite, constipated, tongue coated, smooth at tip and edges. Has an intense crave for alcohol; drank a few hours before beginning the treatment. Took no alcohol after first injection; was at a dinner party four days after where liquor was used, but had no desire for it and took none. After fifteen injections he was discharged, much improved in general condition and changed in his appearance.

CASE VII.—Corset-maker, aged thirty-two; has used liquor for fifteen years, and excessively for ten years; went on protracted sprees at irregular intervals; treatment continued from February 5 to 20, 1892. Was drinking when the first injection was given. No desire for liquor after second day, and steady progress afterward toward his usual condition of health in the intervals of sobriety; four months after again he resumed the habit.

CASE VIII.—Druggist, aged twenty-nine; has used alcohol since nine years of age. Had not taken any for two years previous to three months ago. Had made many attempts to give up the habit, but without success. No heredity. No insanity or nervous disease in the family; desire for liquor left after second day; states that he has not experienced any of the symptoms of nervousness and depression observed at other times when breaking off. At the end of the two weeks' treatment was in good condition and no desire for stimulants. Some three months after learned that he had relapsed.

CASE IX.—Auctioneer, aged forty-two; has drank intoxicants for about thirty years, during last six years almost constantly; was irregular in his attendance and got about twenty injections; began drinking immediately after.

CASE X.—Waiter, aged fifty-five. Has used liquor since he was twenty years of age; father drank; has abstained at intervals of two, three, six, and eleven years. The last six years' abstinence ended a year ago, when, for some reason, brandy was recommended by his physician; since that has drank more or less constantly. Was intoxicated when he got the first injection, February 15, 1892. Much gastric derangement and sleeplessness. Bromide of sodium used to procure sleep. Had no desire after the first day, and has not drank any since.

CASE XI.—A man, aged forty. No occupation. Interdicted for some six years; a chronic inebriate, with inherited predisposition. When first injection was given was in a stupor and semi-paralyzed condition; had been drinking very hard for two weeks, and had for the last week taken sixty grains of sulphonal at bedtime, furnished to him on his own application by a druggist. He began treatment on February 25, 1892.

At the end of two weeks he had improved very much, and for a week had not asked for stimulants. He then went out for a drive and, passing a saloon to which he was accustomed to go, could not resist the temptation to enter.

He was then placed in a private ward in hospital, and the injection given for three weeks. After the fourth day he did not ask for liquor, and at the termination of the treatment had quite recovered himself, and left stating that he had no desire

for alcohol and that he would not again touch it. Three days after he had broken his resolution.

CASE XII.—Gardener, aged thirty-three; has taken liquor since the age of fifteen; father drank. Patient gets intoxicated every pay night (Saturday), and would return to work on Monday. First injection, February 23, 1891. He drank none after the first injection; had two weeks' treatment, one injection daily. He remained a total abstainer for five months.

Reported himself again for treatment on December 19, 1892. He had gone on a visit to the United States, and while in company was induced to take a glass of beer, and for the last four months has drunk more or less constantly, and has been drunk daily for the last four weeks. Put tartrate of antimony into his accustomed liquor and advised him to use it for a day or two while under the treatment; it caused considerable nausea and vomiting. Used the stronger solution twice daily for ten days, and once daily for ten days longer. Was free from the craving after the first day. Took the tonic for five weeks; two days after it was finished he began drinking again.

CASE XIII.—Widow, aged forty-four; has used liquor for twenty years, inordinately for four years. She suffers from chronic gastritis; pains in the hands and feet. First injection, March 1, 1893. At the end of the first week, inclination for her usual stimulant had left, and her gastric symptoms had much improved. During the first week of treatment she avoided passing the saloon which furnished her with whisky, fearing that she would not have the courage to do so without calling. After the first week she passed it daily, and was quite free from desire for alcohol; remained all right for six months.

CASE XIV.—March 5, 1893. Commercial traveler, aged thirty-seven, single; has been an alcoholic for seventeen years; father drank. Took rye during the first three days of treatment, but states that its effect is different from what it usually is. He thinks that under the influence of the injections one can take larger quantities of alcohol without its having the ordinary effects. Increased his injections to one twentieth of a grain. After the fourth day he had no desire for his accustomed rye. On the thirteenth day he received some unpleasant news, and tried to assuage his feelings with rye, but it was not gratifying, and he took no more. He remained all right one month only.

CASE XV.—March 9, 1893. Civil engineer, aged forty-two; has used liquor for twenty-one years; father drank. One-gramme doses were given. Lost all desire after the fourth day. Three months after had resumed his drinking habits.

CASE XVI.—March 27, 1893. Butcher, aged twenty-six; an inebriate for eight years; father used liquor, but not to excess; a brother a hard drinker. Gave thirty one-gramme injections. Lost the desire for alcohol after the fourth day, and has remained an abstainer up to this date.

CASE XVII.—March 28th. Telegraph operator, aged forty; a drinker for twenty-five years; no hereditary predisposition, sleeplessness and gastric derangement. Took no liquor after the first injection. Made a satisfactory recovery. Relapsed four months after.

CASE XVIII.—April 5th. Broker, aged forty-seven; has used liquor for twenty-seven years; latterly is constantly under its influence; marked facial acne; much gastric distress. Combined  $\frac{1}{16}$  grain atropine with the strychnine once daily until its physiological action was fully developed. Had three weeks' treatment. Took liquor daily until the end of the first week; after that had no desire whatever. Stated at his last injection that he did not wish to give up the habit of using wine at dinner; he was advised of the danger of doing so. Some two months after he was as bad as ever.

CASE XIX.—July 11, 1892. Commercial traveler, aged forty-one, single; no inherited tendencies. Has used liquor since

eighteen years of age; now goes on prolonged sprees; has gastric catarrh. Gave internally peroxide of hydrogen, compound tincture of cinchona, and tincture of capsicum. Used no liquor after the first injection. Gave him a mixture to take for a month after his treatment, containing strychnine nitrate in elixir of the phosphates with calisaya (Wyeth's). On January 12th (six months after) reported having been a total abstainer ever since, although daily in places where liquor was retailed.

CASE XX.—September 8th. Manager boot and shoe factory, aged sixty. Used alcohol first at twenty years of age; at twenty-seven used it excessively for years back, and has indulged in prolonged debauches three or four times a year; has now been drinking four weeks. No hereditary tendencies; patient is much debilitated, no appetite, and can not sleep. Paraldehyde gave sleep. No desire for liquor after fourth day, when he returned to his work and has remained well to date.

CASE XXI.—October 30th. Clerk, aged thirty-seven; has used liquor for eleven years. No hereditary predisposition. Uses mostly whisky. Sleepless; paraldehyde gave sleep; got thirty injections; no desire for liquor after second day. At the end of his treatment was feeling unusually well. He has remained at business and has not taken any liquor since.

CASE XXII.—October 3d. Agent, aged fifty-nine; has used liquor since a boy, and up to thirty-five years of age could get drunk every night and be up at work the next day. Since then has been a confirmed inebriate. Both parents were very intemperate. The injections within two days had improved the condition of his stomach and lessened the desire for alcohol, but he continued his beer during the first week—a glass or two at bedtime. Two days before the treatment was completed he left the city for two days, and at a gathering of friends indulged very freely.

CASE XXIII.—Traveler, aged forty, had a sunstroke in 1880; no hereditary influences. Although he took a glass of ale occasionally, it was not until after the sunstroke that he began to indulge freely; has now been drinking steadily for four weeks; he was sleepless and on the verge of delirium tremens; secured sleep readily with paraldehyde and bromide of sodium; began with seven decigrammes of the stronger solution, increasing it up to ten; thirty injections; drank none after the first day and made a rapid recovery, resuming work within a week.

CASE XXIV.—March 26, 1892. Carpenter, aged thirty-four; began to drink seven years ago; takes two to three days continuous drinking spells at irregular intervals; last one continued a week; not inherited; sleepless and no appetite. Three doses of paraldehyde gave sleep. Gave thirty injections, beginning with seven decigrammes of the strong solution, ten after third day. Took no liquor after first injection; went to work on the second day, and made a rapid recovery to his normal condition. To take tonics for one month. Has remained well to date.

CASE XXV.—December 8, 1892. Broker, aged thirty; has used alcohol for about eight years, excessively for six years; no heredity; much gastric derangement. Gave a purgative of powdered rhubarb and calomel. Bromide of sodium, peroxide of hydrogen, tincture of calumba, and capsicum internally. Required paraldehyde to get sleep. Blood examined. There were 4,400,000 red corpuscles to the cubic millimetre; about seven tenths of them were shrunken and very irregular in shape, with jagged edges, some of the projections acute, others truncated. No craving for alcohol after the third day of treatment. Thirty injections—all ten decigrammes—after third day. Although mingling with his old associates daily in places where liquor was sold, felt no desire whatever for it; appetite was good, and he appeared fully restored to his usual health.

From the results obtained in these twenty-five cases we can learn that, simultaneously with the use of this remedy, the crave for alcohol in inebriates diminishes and in a few days is completely gone, and through the withdrawal of the poisonous beverages and the tonic effects of the strychnine there is a more or less rapid restoration to sound physical health and of the mental powers; but as most of those treated have relapsed within from one to eleven months, the inhibiting power of the remedy is not permanent, and while it temporarily relieves the distressing and overwhelming crave for more stimulant and promotes a return to normal health, and in which condition the patients may continue to remain, yet they still lack the necessary will power to enable them to avoid the dangers which they know will precipitate a return to their previous enslaved and degraded condition. So that, while it is fully within the power of medical science to restore these patients to temporary health, strychnine does not—as doubtless no drug treatment ever will—prevent the possibility of further relapses, although we can always depend on it to arrest what would be a prolonged debauch if its aid is early resorted to. That weakened will power is a result of the prolonged use of alcohol is generally conceded, as is the fact that the tendency to alcoholism is in a large percentage of cases inherited, and it is often, as dipsomania, one of the manifestations of insanity; that a definite series of pathological conditions follows the continued indulgence in alcohol, differing only in degree in the case of the milder methyl to the powerful effects of amyl alcohol, the nervous system showing the earliest and most marked disturbance, although every organ and tissue in the body eventually suffers. These and many other facts have led neurologists to place alcoholism as a distinct disease among the neuroses.

This position implies a complete revolution in the methods of treating these cases, and has brought to the aid of philanthropists and moralists the assistance of the medical profession, upon whom now devolves the duty of further elucidating the true pathology of the disease and indicating the best means of restoring this numerous class of patients to a normal condition.

That the urgent demand for relief from the evils of intemperance is being recognized by the profession is evidenced by the increased interest taken in the work of the American Association for the Study and Cure of Inebriety, and in the Section for the Study of Inebriety of the British Medical Association, and by an ever-increasing number of scientific investigators throughout the world.

Before rational and effective measures can be adopted for the proper management of inebriety, we must have correct opinions in regard to the physiological actions of alcohol and the pathology of the disease; otherwise we must trust to the empirical results of experience.

The decomposition of alcohol which takes place in the economy is not yet known. It has been generally accepted that from one to two ounces can be oxidized in the system, giving heat and force to the extent of the oxygen used, but the tissue changes are lessened, as evidenced by the diminished excretion of urea and  $\text{CO}_2$  and to the degree that they have been robbed of oxygen by the systemic digestion of the

alcohol. From this fact has sprung the idea that it conserves the energies and lessens waste, and on this assumption it is frequently prescribed as a sustaining remedy; but a view which would appear to be nearer the truth of the matter is that which denies that alcohol is a food in any sense, but being a ptomaine, a result of decomposition, it is, like these, generally a poison in all its actions; that it is not oxidized in the system, but that it combines with the hæmoglobin and destroys its functions of absorbing O, the diminished urea and  $\text{CO}_2$  being in this way accounted for. Other observers have demonstrated that the leucocytes have their vitality lessened by the continued use of alcohol, and, in harmony with our recent views on phagocytosis, this fact would explain the greater susceptibility of drunkards to the action of pathogenic bacteria and their lessened resisting power in throwing off disease, although Mortimer Granville maintains an opposite view on this point, and alleges for alcohol-drinkers a greater immunity than for abstainers. That the red corpuscles are profoundly altered was observed in the last case I reported—the only one in which the blood was examined. We have here the evidence of a veritable poikilocytosis in a subject where neither aglobulism nor achromatosis existed. Most of the effects of alcohol are apparently explained by its paralyzing effect on the vaso-motor system from the first contact. We have also the slight stimulating effects on the heart of small doses, and its local and reflex irritant action on the alimentary tract, which results in increased buccal and gastric excretion, thus favoring digestion; but even this advantage is not upheld by the recent experiments of Blumenau, who found that the total action was impairment of digestion; and when we take the fact that even the stimulating effects are quickly changed into paralytic conditions, and, where often repeated, leading to exhaustion of every function and more or less degenerative changes throughout the body, we can readily understand how we are to get beneficial effects from drugs having the action of strychnine.

The chief action of alcohol, then, is to paralyze the vaso-motor system, dilating the arterioles. Strychnine, besides exalting the excitability of the spinal cord and probably the motor centers in the brain, stimulates the vaso-motor centers, contracting the arterioles, as well as being one of the most efficient heart tonics through its stimulating effects on the cardiac ganglia.

While we have in strychnine a true antagonist to the action of alcohol and one that will counteract its effects, the inebriate still requires aid which can scarcely be expected of drugs; he needs the mental and will power to overcome his acquired or inherited tendency to resort to narcotics. This must come from treatment which seeks first to restore all the abnormal conditions of the patient; whether due to alcohol or otherwise, then strict abstinence must be maintained, the patient being aided by moral suasion, the diversion of continual employment, and the education of the mental and moral faculties to a higher status; even the influence of hypnotic suggestion may be applied in suitable cases, as has been done recently with a fair measure of success; and where these means fail, then institutions where voluntary or forced detention can be secured, and



where all the present known means can be most successfully applied, must be the only hope of restoring the unfortunate subjects of narcomania.

### ALOPECIA.\*

BY CONDUCT W. CUTLER, M. D.,  
NEW YORK.

THIS subject is interesting to us all, but evidently to some more than others for personal reasons. Although baldness is much more common in the male sex, it is none the less noticeable, for women's heads are usually covered, and so do not attract attention.

Since that terrible punishment received by the children who gave Elisha the unasked-for advice to "go up, thou bald-head," we have been accustomed to look upon bald heads with reverence, and as a sign of old age and natural decay; but now times have changed, and even ballet dancers are apt to look down upon them. Alopecia is seen so frequently in comparatively young persons that it may be considered as a disease when occurring in those under forty years of age. That a bald head is not a desirable possession is evidenced by the enormous sale of nostrums warranted to restore the natural covering to the scalp.

To every hair is given a length of life varying from four months to four years, and it is estimated that the daily average loss of hairs from a healthy scalp varies from thirteen to two hundred. In the natural condition of the scalp every hair which dies is replaced by another, which usually grows from the same papilla, but sometimes from a new papilla developed by the side of the old one. If this growth of hair did not take place every one would be bald within four years.

These new hairs should be of the same size as the old ones, and have the same length of life. The thicker the hair the longer its life; so, if the new hairs which make their appearance are smaller in caliber than the old ones, it is a pretty sure indication of approaching baldness.

The term alopecia is a very general one, and should be used to describe a symptom rather than a disease. Just as we use the term headache to designate the symptom of a disease, so should we speak of alopecia as a symptom present in certain affections of the scalp. You can no more cure the diseased condition of the scalp by simply treating the symptom alopecia than you can cure pneumonia or typhoid fever by remedies used to lessen the headache.

There are so many varieties of alopecia—each variety depending upon different causes, with different symptoms, and demanding different treatment—that I shall only call attention to the most important disease of the scalp which is accompanied by baldness—namely, seborrhœa. To perfectly understand how a seborrhœa of the scalp will result in alopecia it will be necessary for me to call attention to the very close anatomical and physiological relation between the hair follicles and the sebaceous glands.

Each hair follicle may be considered as a prolongation downward of the epithelial layer of the skin into the

corium, which is its deepest layer. In the bottom of the sac thus formed the fibrous elements of the corium rise and form a papilla, which is called the hair bulb, and from which the hair is supposed to take its growth. On either side of each hair follicle thus formed is situated a sebaceous gland with its duct opening directly into the follicle, so that the secretion from such glands finds its way to the surface of the skin through the mouth of the hair follicle. The secretion from these glands supplies pabulum to the growing hairs, thereby nourishing them; so you can readily understand, from these close relations existing between the hair follicles and the sebaceous glands, that any disease, or even disturbance of function of these glands, must necessarily, if long continued, affect the growth and condition of the hairs.

There are several forms of seborrhœa which may result or terminate in alopecia, but there is one variety which, from its great frequency of occurrence, its insidious manner of approach, the apparent insignificance of its early symptoms, and its certainty of termination in permanent baldness if not properly managed, is a disease of much importance, and the only one which I shall now speak of. This disease which I refer to is termed alopecia furfuracea, or eczema seborrhoicum of the scalp, also sometimes called alopecia pityrodes, or dandruff.

The disease always begins in the sebaceous glands as a fatty metamorphosis of the glandular cells. This degeneration extends into the hair follicles, which eventually results in an atrophy of the hair bulb and a permanent loss of hair. Of late the opinion is gaining ground that alopecia furfuracea is a contagious disease, and the experiments of Lassar and Bishop would seem to prove this.

They have succeeded in producing typical attacks of this disease in guinea-pigs by rubbing into their backs a pomade composed of the scales taken from the head of a student suffering from dandruff. A number of observers have found micro-organisms present in the scales produced in alopecia furfuracea, but it is not absolutely demonstrated that these parasites are the direct cause of the disease.

The disease usually begins between the ages of fifteen and twenty-five years, and the first symptom noticed is dandruff. In the beginning this desquamation of fine, branny scales from the scalp is so slight as to pass unnoticed, but after a time they become so abundant as to fill the hair and fall over the clothing. All parts of the scalp are not equally affected, the disease appearing most markedly about the edges of the hair and on the vertex of the head, sparing the occiput and sides. Accompanying this desquamation there are few if any subjective sensations attracting the patient's attention to the diseased condition of the scalp, a pruritus or itching of greater or less severity being the only symptom present. Sooner or later, however, the patient will notice a constantly increasing number of hairs coming out, and that loose hairs will be found on his clothing during the day and on the pillow in the morning. At first there does not seem to be any thinning of the hair, as each hair is reproduced; but it will be noticed, if a careful examination is made, that the new hairs are smaller in caliber, which is a pretty sure sign that

\* II Kings, ii, 23, 24.

an atrophy is already taking place in the hair papillæ. About a year or more after the disease is first noticed a marked thinning of the hair will be found, usually beginning in two spots—one just back of the anterior border of the scalp, and the other near the vertex. This is the beginning of the end. Unless proper treatment is begun at once, "Good-by, fond hopes of future greatness," for there will soon be left no "hair (heir) to the crown."

Now, a few words regarding the treatment of this affection: As the skin is in an apparently healthy condition under the scales, it seems a very easy matter to remove these scales with soap and water, or with oil; but, unfortunately, the removal of the scales in no way removes the disease, as they will form again in even greater abundance in a few days, sometimes in a few hours after they are removed. The remedies which are recommended and advertised for the cure of this affection are only exceeded in number by those given for the relief of the vomiting in pregnancy. The question then arises, Which of these remedies are we to use, and how are they to be applied?

When Elisha had his attention drawn to his bald head he immediately looked around for some means of relief. He found that bears afforded a remedy which was wonderfully and rapidly effectual, for we do not hear of any further reference made to his bald head.

Since then "bear's grease" has been one of the many remedies applied to the scalp for the cure of alopecia. It acts well, especially with children, to prevent baldness. Some dermatologists maintain that, as the original prescription called for only the she bears, this preparation should be made from the female animal; the importance of this, however, I think, is doubtful. Of late years we have found other agents acting to better advantage. The scientific treatment of the disease differs somewhat according to the extent to which it has progressed. If we see the disease in its early stages, when the only symptom is dandruff and when the loss of hair is very little if any, we can do a great deal in the way of prophylactic treatment.

In the first place, the constant application of water to the scalp is bad. It undoubtedly tends to produce dandruff, and if the disease already exists, it always aggravates it. The same is true of irritating applications to the scalp, such as tincture of cantharides, capsicum, and all strong alcoholic preparations, for they not only tend to set up an inflammatory condition, but, by dissolving the natural oil of the skin, produce a dryness of the scalp which in the end does more harm than good—in fact, may be the direct cause of the disease.

The hair should be shampooed once in ten days to two weeks with the yolks of three eggs beaten up with lime water. After thoroughly rubbing this into the scalp, it should be washed out with a solution of borax in hot water, the hair thoroughly dried, and the following ointment rubbed into the scalp and allowed to remain over night:

R Pilocarpin. hydrochlor. .... 3 ss;  
Vaseline. .... 3 v;  
Lanolin. .... ̄ ij;  
Ol. lavandulæ. .... gtt. xv. M.

In the morning, after the hair is thoroughly rubbed dry,

its greasy condition will not be noticed. Moistening the hair every day with water will do no harm, if necessary to keep the hair smooth, but daily sousing of the hair should be prohibited. Deep brushing of the hair every day with a long-bristled brush, stiff enough to warm but not scratch the scalp, is stimulant enough for a healthy scalp.

If we do not see the patient until the hair has already begun to fall out to a considerable extent, a different plan of treatment is to be recommended. Once in every five days to a week the patient should take a shampoo, using the tincture of green soap to form a lather. After thoroughly drying the hair, a pomade such as just recommended is to be rubbed thoroughly into the scalp and allowed to remain over night. In the morning this should be washed out with the tar soap, and the following lotion rubbed in:

R Hydrarg. chlor. corros. .... gr. iv;  
Resorein. .... ̄ j;  
Aque destil. .... ̄ iv. M.

This lotion is to be applied night and morning, rubbing it well in about the roots of the hair with a small sponge.

Usually in three or four weeks a marked improvement will be noticed by the absence of dandruff and the hair no longer falling out. As the improvement continues the treatment may be less vigorous. The shampoo may now be used once in ten days or two weeks, and the lotion applied only at night; but treatment should be continued for at least six months. Relapses are very common, and especially so if all treatment is discontinued too early. After the hair has stopped falling out, you may find that the new hairs which replace those that were lost are weak and need stimulation.

There is but one drug taken internally which seems to possess the power of stimulating the growth of the hair, and that is pilocarpin. It must, however, be taken in quite large doses to have an effect, and even then it is often disappointing. In some cases better results are obtained by giving it by hypodermic injections.

Externally there are many irritant applications to the scalp which are recommended to stimulate the growth of the hair. If these applications are used while the seborrhœa is still present, only harm can come by irritating a scalp which is already inflamed; but if the disease is first cured, then such applications may be used with advantage. The following is the one I usually recommend to stimulate the growth of the langu hairs after all traces of the seborrhœa have disappeared:

R Tinct. cantharidis, }  
Tinct. capsici, } ..... āā ̄ ss.;  
Tinct. nuc. vomicæ, }  
Ol. ricini, }  
Aque coloniensis, or bay rum. .... ad ̄ v. M.

This lotion may be rubbed into the scalp every night for several weeks, and then continued less frequently for several weeks longer.

In the third stage of the disease, when baldness has fairly won the crown, do not despair. Your work is not yet done. You may somewhat dim its shining glory by still one more prescription—for a wig.

THE  
NEW YORK MEDICAL JOURNAL,

*A Weekly Review of Medicine.*

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JUNE 3, 1893.

THIOCAMF.

This name was given by Professor Emerson Reynolds to a liquid devised by him as a disinfectant and described in a paper read by him at a meeting of the Royal Dublin Society four years ago. It is made by bringing sulphur-dioxide gas into contact with camphor and dissolving in the resulting liquid various antiseptics, among them phellandrene and benzoic acid. This liquid can be kept in bottles without pressure, but on exposing it to the air in a thin layer it gives off "relatively enormous volumes" of sulphur-dioxide gas. Reflecting upon this property possessed by the liquid, Dr. George F. Duffey conceived the idea of using it as an intestinal antiseptic. He gives an account of his use of thiocamf as a remedy in the May number of the *Dublin Journal of Medical Science*.

The choice of a vehicle for the internal administration of the compound was restricted to fatty matter and alcohol. At Professor Reynolds's suggestion, pure butter, freed from water and salts, was employed as an excipient, and that gentleman made a preparation, containing ten per cent. of thiocamf, which was put into gelatin capsules, about ten grains of the mixture into each capsule. It is said that in making the mixture care has to be taken to melt the fat at as low a temperature as possible, as otherwise it would give off its sulphur dioxide. Dr. Duffey took one of these capsules, and in fifteen minutes he had an eructation that gave rise to a decided taste of sulphur dioxide. "This," the author says, "was repeated in five minutes, and again at three intervals of fifteen minutes each. No other effect was perceived." The drug was then administered to a woman who was in the fourth week of a severe attack of typhoid fever. She had vomiting, meteorism, and much abdominal pain. On the first day three capsules were given, at intervals of three hours, and on the next day four, at the same intervals. She suffered a good deal from eructations after taking them, but was otherwise somewhat better. The stools were found to be much less offensive than they had been. Afterward keratin-coated capsules were used, and eructations did not follow. In another case, that of a consumptive who was troubled with attacks of pyrosis coming on two or three times a day and at night, four uncoated capsules were given, one every second hour. Two days afterward the man reported that he had vomited only once since he had begun taking the capsules, and that he had then no pain in the stomach, but had had before using them. In a case of dilatation of the stomach the capsules gave temporary relief. In a case of fetid alvine evacuations, their odor was removed by the administration of the keratin-coated capsules. At the time of writing his article the author was using prepared lard as an excipient, and

he suggests that cacao butter also would be a suitable vehicle. He proposes that the remedy be tried in cholera, typhoid fever, pernicious anæmia, pyrosis, various forms of dyspepsia, and flatulent distention of the bowels.

As regards the external use of thiocamf, Dr. Duffey's experience includes two cases of scabies. One was very severe and complicated with extensive eczema. A four-per-cent. solution of the drug in olive oil was applied, and the patient was cured in fourteen days. In the other case, in which there was but little eczema, a cure was effected in five days. From the effects of the pharmacopœial solution of sulphurous acid in parasitic skin diseases he thinks that an oily solution of thiocamf would probably be of use in pityriasis versicolor, favus, and other dermatophytic affections. In the case of a paralyzed woman who had a large bed sore of the sacral and gluteal regions, gangrenous and emitting a most offensive odor, applications of an oily solution—four-per-cent. at first, then six-per-cent.—"quickly removed the fœtor, diminished the discharge, and caused the sore, after the removal of the slough, to assume a clean, healthy appearance." A four-per-cent. solution came to be largely used in the out-patient service of the City of Dublin Hospital, in which institution Dr. Duffey's trials of thiocamf were made, for dressing ulcers and wounds, and was found very efficient in keeping the parts free from fœtor and in checking the discharge. The application of such a solution to a raw surface causes a slight and evanescent sensation of heat and pricking; if a stimulating effect is required, the strength of the solution may be increased.

The rest of Dr. Duffey's communication relates to the use of thiocamf as a disinfectant of rooms, dejecta, clothing, the hands, etc., and reference is made to Dr. J. W. Moore's description of the method of disinfecting a room by means of thiocamf, in his *Text-book of the Eruptive and Continued Fevers* (Dublin: Fannin & Co., 1892), also to a pamphlet issued by Messrs. Thomas Tyrer & Co., a London firm of manufacturers of chemicals, which includes a reprint of Professor Reynolds's paper.

SYMPHYSEOTOMY OR SYMPHYSIOTOMY?

In its last issue the *Medical Record* repeats its affirmation that *symphyseotomy* is the only correct spelling of the word. In the *Journal* for May 13th we had said: "While we are not ready to say that *symphyseotomy* is not the preferable form of the word, we can not admit the cogency of the *Record's* argument, for the epsilon is simply a part of the genitive termination and not a part of the stem. Such Greek words in *-is* take *-iv* in the accusative, for example; moreover, *σύνφυσος* is only a compound of *φύσις*, and must be as free as that word in the formation of further compounds; and, with such classical compounds of *φύσις* before us as *φυσιολογία* (and none that we can find in *-eo-* [misprinted *-es-*]), we are unable to see that *symphysiotomy* is inadmissible." This was our comment on the following statement, made in the *Record* for May 6th: "The word is derived from two Greek words, *σύνφυσος*, a union or growing together, here specifically the symphysis pubis, and



τομή, a division or cutting. As it means division of the symphysis, the latter word is used in the genitive case, the form for which is *συμφύσεως*. There is no iota in this form of the word, and there is no *i* in the English word derived from it. In its last number the *Record* continues its argument as follows: "It is indisputably true that *σύνφυσις* is only a compound of *φύσις*, but it by no means follows that its further compounds must be formed after the model of the Ionic *φυσιολογία*. This compound was made at an early period, before the Attic dialect had given its stamp to the Greek language and when most writers, if writers there were at that time, employed the Ionic forms. Now the Ionic genitive of *φύσις* was *φύσιος*, and the stem retained the iota in all the oblique cases, so naturally enough such words as *φυσιολογία* and *φυσιολόγος* were formed with an iota and not with an epsilon. But in classical Greek, we need hardly remind our scholarly contemporary, stems in *iota*, in words of this class, always change the *iota* into *epsilon* in the oblique cases, consequently *epsilon* becomes a part of the stem and is not simply, as the *Journal* incorrectly says, a part of the genitive termination. Had 'physiology' therefore been coined in modern times it would undoubtedly have been spelled with an *e* instead of an *i*, for we do not now go back to Ionic forms in the construction of Greek neologisms."

Before proceeding to further argument, we will admit that we ought to have been more precise in one of our statements. When we said that the *epsilon* was a part of the genitive termination we did not mean that it was a part of the characteristic case-ending; as a matter of fact, in the genitive form of the word, it is a substitute for the *iota* of the stem. But really, from the *Record's* point of view, the form of our statement should have seemed to it immaterial, it appears to us, for the point of its contention is embraced in the mistaken idea "As it means division of the symphysis, the latter word is used in the genitive case." So it would be if the two words were written separately, *συνφύσεως τομή*, but, when a compound is to be made, the genitive form is not retained, but only the stem, with or without a connective. On page 335 of volume I of Jelf's *Grammar of the Greek Language, chiefly from the German of Raphael Kühner* (second edition, Oxford, 1851), in remarks on the formation of compounds, we find the following: "In words in *is* (gen. *eos*, Ion. *ios*) and *us* (gen. *vos*) the second word is annexed to the simple root (discoverable from the genitive) by the insertion of the conjunctive *o*, as *φυσιο-λόγος*," etc. It is not a question of dialect; modern compounds of *φύσις* are regularly formed in physi-. Numerous examples may be found in the *Century Dictionary*, but not one in *phys-*. The same may be said of compounds of many other Greek nouns ending in *sigma*. Indeed, so exceptional is the survival of the *epsilon* of the genitive termination *-eōs* in analogous compounds that thus far we have succeeded in finding only one classical example, *φρασεολογία* (from *φράσις*, language, and *λόγος*, understanding)—in English, *phraseology*. This word seems to have struck Noah Webster, or one of his successors in the revision of his great dictionary, as singular, for in the edition of 1881, revised by Professor Goodrich and Professor Por-

ter, we find it apparently accounted for by the form *φράσιος* as the genitive of *φράσις*, but that form we have not found elsewhere. It is proper to add that *phraseogram* and perhaps some other derivatives of *φράσις* of like formation are recognized.

Notwithstanding all this, it must be said that so great an authority as Littré gives the Latin of the word under discussion as *symphtysectomia*, but to that he may have been led by the unquestioned French form *symphtysectomie*, which we presume was coined by Sigault, who originated the operation. The procedure was ridiculed for so many years that, now that it has come into favor, it seems no more than Sigault's due that we should recognize the name he gave it. Perhaps a feeling of this sort is at the bottom of its currency; certainly it is not true, however, that the word *symphtysectomy* is incorrectly formed or that its use is confined to those who are careless concerning such matters, for that form is used in the *American Journal of the Medical Sciences*, the *Medical News*, and the *British Medical Journal*—doubtless also in other publications of like standing that do not now occur to us.

In this discussion the *Record* has used language so complimentary to the editor of this journal that it may seem ungracious in us to seek to controvert its argument, but the readers of the two journals must understand that each of them has endeavored to establish what it took to be the truth; it is for the profession at large to decide between them.

## MINOR PARAGRAPHS.

### INJECTIONS OF COPPER PHOSPHATE IN TUBERCULOUS ARTHRITIS.

In the *Province médicale* for April 29th there is a condensed account of the copper treatment of white swelling as practiced by Dr. de Saint-Germain. Two solutions are prepared, and they are mixed without being filtered. The first consists of five parts of crystallized sodium phosphate dissolved in a mixture of thirty parts each of glycerin and distilled water; the second, of one part of copper acetate dissolved in a mixture of twenty parts each of glycerin and distilled water. Care is taken to shake the mixture of the two solutions before making use of it. All antiseptic precautions being observed, a hypodermic-syringeful of the mixture is injected deep, preferably behind the great trochanter, and the puncture is sealed with a bit of absorbent cotton dipped in collodion. The injection is not specially painful, but in certain cases quite a sharp pain is felt on the first or second day after the operation. When several injections are required, the author allows about a fortnight to elapse between them. The action of the injection is manifested speedily by a rise of temperature to from 100° to 103° F., and the fever lasts from one to three days; locally, tumefaction, tenderness, and diminished mobility of the tuberculous glands are observed. It is only after a variable length of time that the curative action is apparent. If at the end of a fortnight the pain persists, the injection is repeated.

### THE PROPAGATION OF CHOLERA BY FLIES.

According to the *Medical Press and Circular*, a Russian investigator, Dr. P. Savtschenko, has experimented on the capa-

bility of flies of carrying the microbe of cholera. He fed flies on broth containing cholera dejecta, and found that, for a considerable time thereafter, the flies expelled feces loaded with active cholera microbes. He then tried the same flies with sterilized broth, and found that for seventy-two hours afterward they still continued to expel an appreciable number of the microbes, thus showing that the intestine of the fly is a congenial habitat for these micro-organisms and possibly a means of the spread of the disease in the face of the most stringent isolation of patients. These observations, standing by themselves, do little more than point out a line of further investigation for the advocates of an absolute quarantine. In the course of Dr. Sternberg's recent remarks before the Academy of Medicine, he is reported as saying that his own experience had led him to look upon the fly as a veritable channel for cholera infection; and Dr. Biggs thought that there was a probable confirmation of Dr. Sternberg's opinion to be found in the fact that a large proportion of the cases of cholera developed in the city last fall was among butchers, who handled meat which, it was known, would attract many flies, while other cases were among persons engaged in handling other kinds of food-stuffs that were attractive to flies.

#### THE TREATMENT OF WHOOPING-COUGH.

To diminish the frequency and intensity of the paroxysms, Dr. Marfan (*Médecine moderne*, March 11, 1893; *Lyon médical*, May 14, 1893) recommends a solution of three parts of antipyrine in a hundred of distilled water and twenty-five of syrup of orange flowers. To a child four years old a dessertspoonful of this solution may be given three times a day, with the meals. For the purpose of securing a certain degree of antiseptic action on the air passages he advises fumigation of the room with a mixture of ten parts each of oil of thyme, oil of eucalyptus, and oil of turpentine, two hundred and fifty of rectified spirit, and seven hundred and fifty of water. This, he thinks, tends to prevent secondary infection.

#### A JOURNAL OF TUBERCULOSIS.

We have received the first number of a new quarterly journal entitled the *Revue de la Tuberculose*, together with a circular issued by the editor, Dr. L. H. Petit, the adjunct librarian of the Paris Faculty of Medicine. The *Revue* appears under the direction of Professor Verneuil and a corps of eminent associates. Each number is to consist of about a hundred pages. Dr. Petit asks us to announce also that the Third Congress for the Study of Tuberculosis in Man and Animals will be held in Paris on July 27th, 28th, 29th, 30th, and 31st and August 1st and 2d, under the presidency of Professor Verneuil.

#### THE NEWSPAPER IDEA OF FAVUS.

UNDER the heading Buchen has a Strange Disease, the *Sun* lately informed its readers that a lad named Buchen, an immigrant from Austria, had been denied the privilege of landing, because he had favus, "a fungous disease of the scalp which, although common in some parts of Europe, especially among the Russian Jews, has not yet been found in this country." "On account of the malignant nature of the disease," the *Sun* goes on to say, "it is extremely dangerous to approach within three or four yards of the person afflicted."

#### CONCEPTION DURING THE PUERPERIUM.

At a recent meeting of the Leipzig Obstetrical Society (*Centralblatt für Gynäkologie*, May 13th) Dr. Kronig related the

case of a woman who was delivered of her first child on July 4, 1892. Four days later she indulged in coitus, and then abstained from it for three months. On the 10th of March, 1893, she bore a child which, in spite of the short term of gestation, showed every sign of maturity.

#### TOMOMANIA.

This name is applied by Schiffrs (*Revue de laryngologie et d'otologie*, December, 1892; *Annales des maladies de l'oreille, du larynx, du nez et du pharynx*, May, 1893) to a phase of hysteria manifested by a morbid desire to be operated upon for purely imaginary ills. It is shocking to fancy what would happen if a patient so affected should fall in with a surgeon who was the subject of the mania secundi.

#### CONSTIPATION IN CHILDREN.

In the *Union médicale* for May 9th we find the following formula, attributed to J. Simon: Two parts each of tincture of cascarrilla, tincture of rhubarb, tincture of cinnamon, tincture of calumba, and tincture of gentian; one part of tincture of nux vomica. From ten to twenty drops are to be given twice a day, according to the age.

#### A NEW JOURNAL OF DERMATOLOGY.

The *Quarterly Atlas of Dermatology* is the title of a new journal of skin and venereal diseases edited by Dr. A. H. Ohmann-Dumesnil and published in St. Louis. The first number, dated April, 1893, contains six half-tone reproductions of photographs, some of which are excellent representations.

#### A SNUFF FOR HOARSENESS AND NASAL ASTHMA.

The *Prager medicinische Wochenschrift* cites from the *Correspondenzblatt für schweizer Aerzte* the following formula: Cocaine hydrochloride, one part; triturated camphor, two parts; bismuth subnitrate, sixteen parts.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 31, 1893:

DISEASES.	Week ending May 23.		Week ending May 31.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	9	6	13	13
Typhoid fever.....	15	3	8	4
Scarlet fever.....	159	15	153	19
Cerebro-spinal meningitis....	23	14	19	15
Measles.....	143	4	180	7
Diphtheria.....	97	39	122	34
Small-pox.....	9	1	14	2

**New York State Medical Association.**—The Fifth District Branch held a meeting in Brooklyn on May 23d. The morning session was chiefly devoted to a discussion on anesthetics, a subject that had been broached in a paper by Dr. E. R. Squibb, entitled Chloroform in 1893. Dr. Squibb gave a demonstration of his test for impurity in chloroform by means of plate and filter-paper. The general opinion brought out in the discussion condemned the notion, recently promulgated in the public press, that edema of the lungs was a common feature or incident of fatal results from anesthesia; it was a good deal of a myth. The afternoon session was given up to the following subjects: The Pre-

vention of Blindness from Ophthalmia Neonatorum, by Dr. L. A. W. Allemen; Chronic Nasal Catarrh, by Dr. Birmingham; The Treatment of Certain Forms of Fracture, by Dr. Charles Phelps; and The Management of Hip Disease, by Dr. A. B. Judson.

**The Medical and Surgical Society of Baltimore.**—The announcement for the 758th regular meeting, on Thursday evening, the 25th ult., mentioned the following titles: Acute Infectious Peritonitis, with the Report of a Case, by Dr. Frank C. Bressler; and Nasal Reflexes, by Dr. William J. Jones.

**The Buffalo Academy of Medicine.**—At the next meeting of the Surgical Section, on Tuesday, the 6th inst., Dr. Edward G. Meyer will read a paper on Hemorrhoids, and Dr. Edward Clark will read one on The Treatment of Hemorrhoids.

**The City Board of Health.**—It is stated that Dr. George F. Shrayd, the well-known editor of the *Medical Record*, has been appointed a consulting physician to the hospitals that are under the board's control.

**The New Surgeon General of the Army.**—It is announced that Dr. George M. Sternberg, of the medical corps of the army, has been appointed to succeed Surgeon-General Sutherland. The medical profession feels confident that in Surgeon-General Sternberg's hands the affairs of the medical corps of the army will be well administered, and we believe that his appointment is in every way approved by his professional brethren.

**The Death of Professor Markusovszky, of Buda-Pest.**—The *British Medical Journal* announces that Dr. Ludwig Markusovszky, an honorary professor in the University of Buda-Pest and "one of the foremost men in the medical profession in Hungary," died of heart disease on April 21st, aged seventy-eight years.

**Changes of Address.**—Dr. Alexander Lyle, to No. 117 East Eighty-first Street; Dr. J. B. Mattison (Brooklyn Home, etc.), to No. 188 Prospect Place, Brooklyn; Dr. Edward C. Seguin, to No. 47 West Fiftieth Street; Dr. David Webster, to No. 327 Madison Avenue.

**Naval Intelligence.**—Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending May 27, 1893:

**MARSTELLER, E. H.**, Passed Assistant Surgeon. Detached from the Naval Academy and ordered to the Practice-ship Constellation.

**GRIFFITHS, S. H.**, Passed Assistant Surgeon. Detached from the Practice-ship Constellation and granted four months' leave.

**EVANS, S. G.**, Assistant Surgeon. Detached from the U. S. Steamer *Monongahela* and granted two months' leave.

**LA MOTTE, HENRY**, Assistant Surgeon. Ordered to the Practice-ship Constellation.

**BLOODGOOD, D.**, and **WELLS, H. M.**, Medical Directors. Ordered as delegates to the American Medical Association at Milwaukee, Wis.

**FLINT, J. M.**, Medical Inspector. Ordered to the U. S. Steamer *Baltimore*.

**COOKE, G. W.**, Medical Inspector. Detached from the U. S. Steamer *Baltimore* and granted three months' leave.

**HERNDON, C. G.**, Surgeon. Assigned to duty in the Bureau of Medicine and Surgery.

**McCLURG, W. A.**, Surgeon. Relieved from duty in Bureau of Medicine and Surgery and to wait orders.

**SMITH, G. T.**, Passed Assistant Surgeon. Detached from the New York Hospital and ordered to the U. S. Steamer *Baltimore*.

**WHITE, S. S.**, Passed Assistant Surgeon. Detached from U. S. Steamer *Baltimore* and granted two months' leave.

**BRYANT, F. H.**, Passed Assistant Surgeon. Detached from Philadelphia Hospital and ordered to the U. S. Steamer *Baltimore*.

**PIGOTT, M. R.**, Assistant Surgeon. Detached from the U. S. Steamer *Baltimore* and ordered to the U. S. Steamer *Kearsarge*.

**ALFRED, A. R.**, Assistant Surgeon. Detached from the U. S. Steamer *Kearsarge* and granted one month's leave.

**WARD, B. R.**, Assistant Surgeon. Detached from the U. S. Steamer *Richmond* and ordered to the U. S. Steamer *Monongahela*.

**DIEHL, OLIVER**, Passed Assistant Surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

**BOGERT, E. S.**, Passed Assistant Surgeon. Detached from the Laboratory, New York, and ordered to the U. S. Steamer *Philadelphia*.

**BOYD, ROBERT**, Assistant Surgeon. Detached from the U. S. Steamer *Philadelphia* and ordered to the U. S. Steamer *Richmond*.

#### Society Meetings for the Coming Week:

**MONDAY, June 5th:** Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); German Medical Society of the City of New York; Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, June 6th:** American Medical Association (first day)—Milwaukee; New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Academy of Medicine (Surgical Section); Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Columbia (semi-annual)—Chatham, Franklin (semi-annual), Herkimer (annual)—Herkimer, Niagara (annual)—Lockport, Orange (annual)—Goshen, Saratoga (annual), Schoharie (annual), and Yates (annual), N. Y.; Hudson (Jersey City) and Warren (annual), N. J., County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

**WEDNESDAY, June 7th:** American Medical Association (second day); Society of the Alumni of Bellevue Hospital; Society of the Alumni of Charity Hospital; Harlem Medical Association of the City of New York; Medical Societies of the Counties of Cattaraugus (annual) and Richmond (Stapleton), N. Y.; Medical Microscopical Society of Brooklyn; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor); Orleans, Vt., County Medical Society (annual).

**THURSDAY, June 8th:** American Medical Association (third day); Society of Medical Jurisprudence and State Medicine, New York; New York Academy of Medicine (Section in Pediatrics); New York Laryngological Society (private); Medical Society of the County of Cayuga (annual), N. Y.; Brooklyn Pathological Society; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

**FRIDAY, June 9th:** American Medical Association (fourth day); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.; Brooklyn Dermatological and Genito-urinary Society (private).

**SATURDAY, June 10th:** Obstetrical Society of Boston (private).

## Letters to the Editor.

### PRIORITY IN THE TREATMENT OF SPRAINED ANKLE.

16 PARK AVENUE, NEW YORK, May 27, 1893.

To the Editor of the *New York Medical Journal*:

SIR: The communication of Dr. William E. Brandt in today's issue calls for very little in the way of reply. It was not a question with me in the preparation of the article, to which you kindly devoted an editorial, of priority, but it was a question of bringing before the profession a method of treatment which I was sure would be of great advantage. Personally I should be glad to have this method attributed to the Kentucky surgeons mentioned by Dr. Brandt. In the first place, Dr. Benjamin Dudley, of Lexington, Kentucky, was my father's preceptor. In the second place, I was a student myself twenty-two or twenty-three years ago of Professor D. W. Yandell's, and no one honors this distinguished surgeon more than I. The late Dr. R. O. Cowling was a personal friend, and I read everything that he wrote. Still further, Professor L. A. Sayre, a Kentuckian by adoption, was my teacher at Bellevue.



I fail, however, to recall any impression that sprains were treated in exactly the same way that Mr. Cottrell advocates. If Dr. Brandt considers the question of priority paramount, let him cite the references and give quotations from the writings of these eminent surgeons. The *onus probandi* certainly rests upon him.

V. P. GIBNEY, M. D.

#### NO POSTPONEMENT OF THE INTERNATIONAL MEDICAL CONGRESS.

NEW YORK, May 29, 1893.

To the Editor of the New York Medical Journal:

SIR: I beg to inform you and your readers, and exchanges through you, that there is *no foundation* for the rumors referring to a postponement of the Eleventh International Medical Congress. Such is the information conveyed to me in a letter of the Secretary General's dated Genoa, May 15th.

It is officially announced that part of the 15th section of the congress will be dedicated to the exclusive consideration of cholera and quarantine. Professor Cunningham and Professor Koch are expected to participate in the proceedings of this subsection.

Besides the North German Lloyd, the Hamburg-American Packet Co., and the Compagnie Générale Transatlantique, the Netherland American Steam Navigation Company (39 Broadway) offers reduced rates to visitors to the congress. The Hamburg-American Packet Co. writes to say that the families of members are entitled to all the reductions.

A. JACOB, M. D.

#### PURE MILK, ETC., FOR THE POOR.

NEW YORK, May 29, 1893.

To the Editor of the New York Medical Journal:

SIR: On June 1st the Tenth Ward Social Reform Club will open a store at 71 Rivington St., where pure milk, fresh eggs, butter, etc., will be sold at cost price. The store is to be run upon a co-operative plan by a number of gentlemen who have interested themselves in alleviating the condition of the poor children on the east side.

This announcement will doubtlessly be of interest to the physicians in this quarter.

MORRIS MANGES, M. D.

### Proceedings of Societies.

#### AMERICAN GYNÆCOLOGICAL SOCIETY.

*Eighteenth Annual Meeting, held in Philadelphia on Tuesday, Wednesday, and Thursday, May 16, 17, and 18, 1893.*

The President, Dr. THEOPHILUS PARVIN, of Philadelphia, in the Chair.

**Congenital Dilatation of the Urethra** was the subject of a paper by Dr. W. H. BAKER, of Boston. The condition was believed to be a continuation of that which obtained in early fetal life, for at the fourth month the caliber of the urethra was such that it would easily admit of the passage of a small finger. At that period it was somewhat larger than the vagina. The condition was not especially rare and often gave rise to the suspicion of vicious practices. In a certain number of cases the suspicion was well founded, but in others the fault was entirely congenital. More or less functional trouble with the bladder was likely to result, though the condition did not of necessity involve the muscular fibers of the neck of the blad-

der. A case was narrated, illustrated by large drawings, in which a cure had been obtained by means of a plastic operation.

**Abdominal Fistula after Cœliotomy; its Prevention and Treatment.**—This was the subject of a paper by Dr. PAUL F. MUNDT, of New York. Small mural or stitch-hole abscesses in the tracts of abdominal wounds were, it must be admitted, of common occurrence. They were not usually a source of great trouble if the operation had been essentially a clean one. Under less favorable conditions deep and troublesome fistulae sometimes resulted at periods more or less remote from the performance of the operation. Their occurrence was favored by the use of drainage-tubes and improperly prepared ligature material. The passage, or sinus, was usually a single one. They also resulted after supravaginal extirpation of the uterus; the vaginal portion of the organ, being left, subsequently sloughed away and left a sinus communicating with the vagina. They might also occur in connection with pelvic abscess, the pus burrowing along the planes of cellular tissue and making external openings. The difficulties attending these fistulae consisted sometimes in the firmness of the abscess walls, sometimes in their depth, the difficulty of draining them, and the unhealthy character of their granulation tissue. Nature frequently tried to give relief by perforation into one or more of the hollow abdominal viscera. Sometimes this was followed by relief; at other times the situation was made more serious. The examination of such cavities was difficult and often dangerous, rupture into the bladder or intestine being easily possible. A great variety of treatment had been practiced. The author had found dressings with balsam of Peru and tincture of calendula useful, also the careful application of a heated probe. If such a cavity was packed with gauze the danger of rupture must be remembered. Drainage into the vagina would be efficient in some cases. Abdominal section should be avoided if possible, for proper separation and dissection of all the offending parts could not always be safely accomplished.

Dr. WILLIAM GOODELL, of Philadelphia, believed that the accident in question usually occurred in cases in which the condition was already septic at the time of the operation. Drainage-tubes and ligatures as causes were, in his opinion, less frequent. He was quite in favor of extending the fistula into the vagina, and thus allow of effective drainage. The venous hemorrhage in making such a vaginal opening might be very profuse.

Dr. CHARLES P. NOBLE, of Philadelphia, thought that incomplete operations were frequent causes of fistulae; a portion of diseased tissue was left unremoved, or a ligature was passed through infected tissue, and a fistula resulted. It taught the necessity of removing all foci of infection.

Dr. ANDREW F. CURRIER, of New York, differed with the author in regard to certain characters of these sinuses. He believed only the very shallow ones were simple; the deeper ones were, as a rule, complex and tortuous. Necessarily it must be so, as the walls were formed by loops of intestine. Hence the danger of rough manipulation, as the author had suggested; hence also the danger of the heated probe in the sluggish granulation tissue of the fistula walls. We must not expect to cure by applications of astringents if the fistulae were deep and sinuous, for the opposing walls of intestine would prevent the liquid from reaching the bottom. That was why they remained open so persistently. Through-drainage into the vagina was rational and would frequently cure. The accident of venous hemorrhage might be alarming. The most rational treatment for the persistent cases was abdominal section preceded by careful curetting with irrigation. Then a probe should be carefully passed to the bottom of the fistula, the point on the surface which was exactly opposite to it noted, an incision made from this point to the external opening of the fistula, the hand passed to the loca-

tion of the end of the probe, retained in the fistula as a guide, and the tissues dissected away from below upward. This would enable one to trace the course of the fistula and break up its connections with greater safety and facility than by beginning the dissection from the top.

Dr. A. P. DUDLEY, of New York, recognized all the causes of fistula which had been mentioned—pus in the pelvis, drainage-tubes, and infected ligatures. His practice was to avoid using the glass drainage-tube entirely, and he seldom had occasion to use gauze packing for drainage purposes. He had also found great satisfaction and safety in the use of animal ligatures, especially catgut.

Dr. G. M. EDEBOHL, of New York, wished to add to the list of causes already mentioned tuberculosis. He had seen four cases of fistula from such a cause. It was not alone tuberculosis of the peritonæum which gave such a result; the disease might exist in the form of tuberculous ulcers within the intestine, perforation finally resulting with attachment to the abdominal walls.

Dr. CLEMENT CLEVELAND, of New York, considered that the condition under discussion was always the result of infectious material, either in the abdominal cavity or in the abdominal wound. For the deep fistulae he considered through-drainage into the vagina the best mode of treatment. For their irrigation he had found peroxide of hydrogen very effective.

**Puerperal Eclampsia; the Experience of the Boston Lying-in Hospital during the Past Seven Years.**—This was the subject of a paper of Dr. CHARLES M. GREEN, of Boston. Puerperal eclampsia was usually attributable to some form of renal disease and to a uræmic condition. The condition occurred in one out of every five hundred puerperal cases. The treatment should vary according as the attack occurred before, during, or after labor. Even if the attack began before labor, suitable treatment might result in the birth of a living child. Interference should be refrained from if possible. Ether narcosis was to be preferred to that of any other anæsthetic. A hot bath or pilocarpine should be given for its action on the skin; a sufficient quantity of brandy; elaterium or croton oil to produce active purgation; and digitalis or nitroglycerin to regulate the heart's action. Venesection had not been practiced in any of the cases which were being considered. If artificial delivery became necessary, dilatation should be accomplished with the hand rather than with hydrostatic bags. Even though several convulsions had occurred, every effort should be made to save the child if it had reached the period of viability. In many cases death would be the result, both for mother and child. If the convulsions began during labor, parturition should be terminated as quickly as possible. The kidneys would resume their functions the more readily if the uterus was emptied. The mortality for mother and child had been twenty-five per cent. in the intra-partum cases. Many of the patients had been brought to the hospital in a comatose condition. In post partum convulsions no interference was indicated if the labor had proceeded normally. In fifteen cases of this variety, only one mother had been lost. The treatment, medicinally, was the same as in the intra-partum variety. Of thirty-six women who had been treated during the past seven years, twenty-seven had recovered. The fetal mortality in cases of viability had been thirty-three and a third per cent. In many of the cases post-partum hæmorrhage had been severe, and no particular efforts had been made to check it. In such cases it was thought that the lessening of the blood pressure was beneficial. As to prognosis, it was concluded that it depended upon the time when the convulsions occurred, their severity, and their duration, rather than their number. The fetal mortality was also governed by the same conditions.

Dr. M. D. MANN, of Buffalo, had observed great benefit from the use of Norwood's tincture of veratrum viride in the treatment of eclampsia. He used it hypodermically in five-drop doses and only in cases in which there was rapid pulse and high arterial tension.

Dr. S. C. BUSEY, of Washington, thought a mortality of twenty-five per cent. was much greater than obtained in private practice. It might not be excessive in hospital practice, especially as the author had stated that many of the patients were already comatose when brought to the hospital. In private practice the mortality would be very low if suitable prophylaxis was exercised. The appearance of renal insufficiency was a signal to adopt all possible precautions. He regarded venesection as an important means of treatment, but it should be used discreetly.

Dr. EDWARD REYNOLDS, of Boston, coincided in the opinion that the prognosis was dependent upon the duration and severity of the convulsions. He thought there were cases in private practice in which convulsions and death could not be prevented, however judicious the prophylaxis. This was especially true in twin pregnancies, probably on account of the extreme dilatation.

Dr. E. P. DAVIS, of Philadelphia, attributed great importance to systematic tests for uræa. If the uræa was below two and a half per cent., the utmost watchfulness would be necessary. If the lungs were œdematous, atropine and calomel should be administered. The condition of the placenta was of great importance with reference to the welfare of the child. If it contained much fat, the prospects for the child were bad. Dührssen had recommended ether as an anæsthetic in preference to chloroform, with multiple incisions of the os uteri and forceps delivery. His results with such treatment had been very good.

Dr. GREEN stated that veratrum viride had not given favorable results in his experience. He agreed to the statement that better results were to be expected in private than in hospital practice, but some cases would end fatally, whatever the treatment. Systematic examinations of the urine should always be insisted upon.

**Septicæmia and its Treatment with Oxygen** was the subject of the paper by Dr. ANDREW F. CURRIER, of New York. The inhalation of oxygen was particularly appropriate, he said, in view of the readiness with which it was taken up by the hæmoglobin and its affinity for the waste elements with which the blood was loaded. The capacity of the blood for absorbing oxygen in this disease had not been definitely determined. A limited number of experiments had been made by individuals in health upon themselves, and by others upon animals, but the conditions were quite different from those existing in septicæmia. The absence of a sufficient supply of oxygen in sick rooms generally, especially in the winter, with closed doors and windows, furnace heat, combustion of lamps and candles, and the respiratory requirements of attendants, was probably an important cause of the higher mortality at that period of the year than at any other. The good results that had attended the treatment of epidemics of typhus fever in tents or in the open air was suggestive of the therapeutic value of oxygen, also the fact that septicæmia was comparatively unknown among savage and barbarous peoples, whose lives are passed in the open air. Questions of tension and pressure were not to be overlooked in considering oxygen inhalation. A pressure of three atmospheres would produce convulsions in rabbits. It was usually desirable to administer oxygen freely mixed with atmospheric air. Not only was this the safer method, but the oxygen was thereby rendered less likely to irritate the air passages. The volume of oxygen necessary for the saturation of the

hemoglobin could not be determined in advance in a given case, the corpuscles in septiciæmia being smaller than in health, and readily becoming disintegrated. The plasma, which in health contained two per cent. of the oxygen of the body, would absorb more than this if the oxygen was administered under pressure, and in septiciæmia an additional quantity was consumed in the formation of the carbon dioxide, urea, and uric acid with which the blood was overcharged. Whether the bacteria in the blood in septiciæmia were killed by oxygen inhalation was uncertain. Welch did not think they could be subjected to it sufficiently long or under sufficient pressure to cause their death without also injuring the blood and other tissues. If oxygen was inhaled under suitable conditions of pressure, it stimulated to deeper respiration, the surface of the body became warmer, the pulse grew stronger, and the color of the surface was made more natural. The stimulation of the heart and lungs was, of course, directly favorable to the purification of the blood by elimination of its toxic elements. The stimulation of the nerve centers presiding over functional activity, if sufficient and continuous, would produce a favorable result, whether a direct germicidal action was exerted or not. In addition to the advantages mentioned, oxygen usually induced drowsiness and sleep, and this was often a matter of sufficient importance to turn the scale in favor of the patient. The treatment should be begun early in the disease, and not after the nerve centers had been poisoned. The simpler the method of administration the better; the principal requirements were that the oxygen be pure, and that it be administered in such volume as to be readily and comfortably tolerated. If administered early enough, it would often save life, and in almost all cases it would conduce to the comfort and well-being of the patient and relieve symptoms which could not otherwise be readily relieved.

Dr. MUNDÉ believed that when all local causes of infection were removed the question would be whether the vital forces of the patient or the conditions which constituted the disease would last the longer. Upon this would depend the result. He believed that oxygen was of value as a means of treatment.

**The Dangers and Complications of Uterine Fibroids** was the subject of the paper of Dr. S. C. GORDON, of Portland, Me. These tumors were not of so simple a character as had been believed. Their growth did not always cease with the menopause, they sometimes underwent malignant degeneration, and their symptoms often made life an intolerable burden. In the presence of such symptoms he was in favor of their complete removal, together with the uterus and appendages. Peritonitis, salpingitis, and oophoritis were always imminent when fibroids were present, and they were of frequent occurrence. In many cases the growth of the tumor was rapid, giving rise to most annoying pressure symptoms. If hysterectomy was performed sufficiently early, it could not now be considered an extra-hazardous operation.

**An Account of Personal Experience in Operations for Fibroid Tumors of the Uterus** was the title of a paper by Dr. MANN. If the tumor was small, he believed that it could best be treated by the performance of Hegar's operation. If it was somewhat larger and readily enucleable, myomectomy was indicated. If the disease was of long duration, the tumor being large and painful, and if its character was such that it would be difficult to make a good pedicle and treat it extraperitoneally, supravaginal hysterectomy was indicated. Hysterectomy through an abdominal incision was the ideal operation both for fibroids and for cancer of the uterus. In almost all operations of the last-mentioned variety he was in favor of the use of some form of drainage. The operation recommended by Baer had not been satisfactory in the two cases in which he had performed it, as it did not permit of free drainage through the vagina. With

improvements in technique, the indications for hysterectomy had increased. A slow and lingering death or a useless life was the alternative offered to very many sufferers who declined operations for uterine fibroids. Such operations could now be performed with almost as much safety as those for the removal of ovarian cysts. An operation should be recommended and the decision left with the patient.

**A Further Report upon Supravaginal Hysterectomy by the New Method** was the title of the paper by Dr. B. F. BAER, of Philadelphia. The author's experience in this operation, in which the stump was allowed to remain within the pelvis, now included twenty-eight cases, in all but two of which the patients had recovered. He was convinced that the method was superior to the extraperitoneal method, superior also to that in which the entire uterus was removed. It was essentially the method that had been practiced successfully by Eastman and Chrobak. Drainage had been used in only two per cent. of the cases, and as a rule it would not be required. Convalescence had followed the operation immediately. The interior of the cervical canal should be burned out with a Paquelin canter, and the cervical stump covered with peritoneal flaps. Very few sutures were required in these flaps, in some cases none at all. The ligatures which secured the uterine arteries would secure the broad ligaments also.

**The Development of the Intrapelvic Treatment of the Stump in the Extirpation of Fibroid Tumors of the Uterus** was the subject of a paper by Dr. J. R. GOFFE, of New York. The extraperitoneal method of treating the pedicle was being abandoned by many operators, and the question arose whether the cervix should be retained or the entire uterus be removed. Kimball had been the first to remove the uterus for myoma, the pedicle being dropped and the ligatures which secured it left outside the abdominal wound for drainage. This had been followed by the operations of Péan and Kéberlé, while Schroeder had suggested his operation of myomectomy. Then had come the work of Brennecke, Zweifel, and Martin. It had occurred to the author to modify previous operations by dissecting away peritoneal flaps of sufficient size from the anterior and posterior aspects of the uterus, transfixing and ligating the cervix on both sides, covering the stump with the peritoneal flaps, and using the cervical canal for drainage purposes. He had performed his first operation in 1888, and since then had performed five additional operations. The Freund operation had been revived in 1889 by Martin for the removal of myomata. The tumor was first removed to the vaginal junction, and then the cervix. The removal of tumor and uterus in one step had been very successful as performed by Krug, Polk, and others. Zweifel had suggested the burning out of the cervical canal with the actual cautery, thus converting the canal into a drainage-tube, and the closure of the peritoneal cavity with flaps dissected from the anterior and posterior surfaces of the tumor.

Dr. MUNDÉ opened the discussion upon the foregoing papers on the treatment of fibroid tumors of the uterus. In a very considerable experience with tumors of this description he had found only about ten per cent. in which he had considered hysterectomy indicated. He therefore objected to the proposition for their wholesale removal.

Dr. POLK believed that the therapeutic results, and not the anatomical condition, were of essential importance. The severest symptoms were sometimes caused by very small tumors. The question as to the value of the operations proposed could only be settled by the ultimate results of very many operations. Many women would be better off for the removal of the uterus with its appendages, even if the tumor was quite small, and this plan was to be recommended if relief was not to be obtained by other means. As to the relative advantage of com-



plete over partial extirpation of the organ, he thought it was decided, and one could be done with as much facility and in as short a time as the other. In any case it would be essential that ample means for drainage after the operation should be provided.

Dr. FLORIAN KRUG, of New York, found more than ten per cent. of cases of uterine myomata in which radical operations were indicated. The symptoms rather than the size of the tumor should in all cases serve as the guide for treatment. The subject was passing through nearly the same stages which had attended the subject of the treatment of ovarian tumors. If an operation was to be successful, one should not wait until the symptoms were too severe to admit of an efficient result. As to the choice of methods, he was entirely in favor of total extirpation.

Dr. J. TABER JOHNSON, of Washington, had operated principally by Bantock's method, using the wire *serre-naud* upon the stump. He had found that the method consumed less time than other methods, and it certainly afforded greater security against hemorrhage. The advantages of a short convalescence, advanced for the intrapelvic method, were not of special importance. For cases in which the tumor was small he was in favor of the Hegar operation. In twenty cases which he had seen, the bleeding had been checked and the tumor had ceased to grow.

Dr. JOSEPH PRICE, of Philadelphia, thought it of great importance to follow up the histories of all cases in which these operations had been performed. This would better enable us to determine the value of our procedures. He believed that tubal and ovarian disease were greatly concerned in the etiology of fibroid disease of the uterus. For small multinodular tumors he was quite in favor of Hegar's operation. For malignant tumors of the uterus he felt that any form of operation was nearly hopeless. He believed that the value of drainage could not be overestimated. He would abandon his work if deprived of this most useful assistant. With its help the mortality in his operations did not exceed five per cent.

Dr. W. E. FORD, of Utica, N. Y., was not in favor of grave operations for slight indications. He had frequently seen women who had been operated upon in the large cities years after their return to their homes, and their condition was often not an enviable one. For small tumors he was opposed to hysterectomy, however severe the symptoms. Such cases were usually relieved by palliative measures, chief among which was galvanism.

Dr. W. G. WYLIE, of New York, thought the subject had not yet reached a stage when exact rules could be laid down. It must be remembered that palliative measures sometimes made subsequent surgical procedures more difficult and dangerous. Galvanism had frequently been used in cases which subsequently required radical procedures, and was therefore unreliable and unsatisfactory. The first object of a surgical operation should be to save life, whatever the subsequent history might be. Entire removal of the uterus with its tumors was theoretically the best procedure, but it was not applicable to every case. If the tumor were small he usually preferred Hegar's operation.

Dr. B. McMONAGLE, of San Francisco, thought that the essential differences between the several procedures which had been recommended for the removal of the fibroid uterus were very slight. His personal experience led him to favor the operation which had been described by Dr. Goffe. It was not a method, however, in which suppuration could be excluded, and therefore measures should be taken by which drainage could be made effective. No single method could be preferred to the complete exclusion of all others.

Dr. A. P. DUDLEY claimed priority in the method which had been described by Dr. Goffe, his first operation having been done in California in 1883. Burnham, of Lowell, had been the first to remove the myomatous uterus, not Kimball, his operation having preceded Kimball's by several months. In 1888 the speaker had assisted Goffe in the performance of his first operation as the latter had described. He had advocated the operation two years before Goffe had read his first paper upon the subject. He did not think drainage was essential, except in cases in which the tumor was very large and oozing was likely to be extensive.

Dr. W. H. WATHEN, of Louisville, thought the discussion had shown the absence of definite conclusions as to the best method of operation which could be adopted. His own experience had been limited to the extraperitoneal method. If the cervix was not removed, the intrapelvic method being followed, suppuration might follow, but this could usually be averted if the vagina had been thoroughly disinfected prior to the operation and then carefully packed with gauze.

Dr. NOBLE agreed to the statement that fibroid tumors were not of the very simple character that had long been taught. Too often their importance and significance had been underestimated. As a matter of inaccuracy of expression, he would criticize the reference to the method of operating proposed by Dr. Goffe and Dr. Dudley as an intraperitoneal method of dealing with the stump. It was quite extraperitoneal, but intrapelvic. He was an advocate of drainage, not as a routine method, but in cases in which it was desirable that all secretions should be removed, and in those in which the cavity would require occasional irrigation. For securing the broad ligaments he knew of no better method than that of interlocking ligatures, three on each side, as recommended by Freund.

Dr. GORDON admitted that he might have been misunderstood in advocating hysterectomy for myomata. He certainly believed that it was the symptoms which should furnish the indications for operation, the size of the tumor being a matter of secondary importance. He believed that the value of drainage was overestimated, for the tube was usually shut off from the peritoneal cavity by exudate in a few hours after it was inserted, and could then drain only a very limited area. If irrigation and flushing of the cavity were required after an operation, the drainage-tube would be indicated. He admitted the usefulness of galvanism in some instances, but its most ardent advocate, Apostoli, admitted that it did not cure but only relieved symptoms.

Dr. GOFFE agreed to the proposition that the first test of either of the proposed measures should be its ability to save life. He believed that the method advocated by him presented the most favorable statistics in this regard. If the cervical canal was properly dilated, as he had suggested, there would be no trouble from suppuration.

Dr. MANX expressed his decided preference for the method of complete removal of the organ over all others. The presence of the vaginal portion of the cervix was of no value in strengthening the anterior wall, and there had been cases in which it had sloughed away. He had also seen one case in which the cervical portion had undergone cancerous degeneration and proved quickly fatal, which could have been averted if the original operation had been complete instead of partial. One great objection to the extraperitoneal method of treating the stump was the severe pain which was caused whenever the *serre-naud* was tightened. It was necessary to repeat this tightening day after day until complete separation of the portion above it occurred, and the agony thus caused was very great. He dissented from the statement that disease of the tubes and ovaries

caused the development of fibroid tumor of the uterus, and believed that the contrary was true. Drainage was often necessary after hysterectomy where it would be unnecessary after other operations, the danger from infection being greater.

(To be concluded.)

## Book Notices.

*A Handbook of Local Therapeutics.* By RICHARD H. HARTE, M. D., ARTHUR VAN HARLINGEN, M. D., HARRISON ALLEN, M. D., and GEORGE C. HARLAN, M. D. Edited by HARRISON ALLEN, M. D. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. 505.

THOUGH there are many books on surgery, dermatology, laryngology, otology, etc., which contain admirable and satisfactory information relative to the local employment of drugs in the conditions discussed, yet this is the first instance, if we are not mistaken, in which local remedies have been treated of in one text-book and with any pretense of completeness, and from the standpoint of the therapist rather than that of the specialist. Writers on therapeutics, too, seem to have neglected the local effects of drugs, presumably because in many cases they were not familiar with them; and the authors of this volume most justly say "no text-book was available in which the local actions of drugs were not subordinated to their general actions." It has been the effort of the authors to supply this deficiency, and we can not too highly congratulate them on their success. Thanks to them, we have a reference book on local applications written as it should be by specialists (for they are the ones most familiar with the subject and hence most competent to judge) and yet handled from the therapist's standpoint, and, moreover, by a judicious collection of authors, entitled to the distinction of completeness. In one way it is perhaps too complete, for there are many things mentioned in its pages which are little used, are of little use, and might well have been omitted; but then this is the fault of most books on materia medica and therapeutics, and, after all, the book is a reference book, not a treatise.

The drugs are considered in alphabetical order; and under each heading there first appears in small type a short account of the chemical characteristics of the drug, its preparations, its incompatibilities, pharmacal directions, etc. Following this is briefly noted its physiological action as a local application. Its use in general surgery comes next, followed by its use in dermatology, then by that in otology, rhinology, and laryngology. Finally there is a paragraph on ophthalmology.

This arrangement is one of the best features of the book, the paragraphing, subdividing, and use of type giving each subject a most orderly arrangement which will be of the utmost value in using the book for hasty reference.

Of the matter contained in the work nothing but praise is to be expressed, and the newer remedies, though naturally not treated of at great length, are yet sufficiently considered, and the reports on them are most valuable—those on ichthyol, pyoctanin, naphthol, resorcin, and hydrogen peroxide in particular. Among the older remedies, some are accorded a considerable amount of space, and we regard the matter on carbolic acid, salicylic acid, water, the cautery, cocaine, the mercurials, the iodine group, and nitrate of silver as of great interest and value.

Authors' references are frequent and are placed, as they should be, in the text and not at the bottom of the page.

It is true that the volume is not free from errors, and we think the proof-reading might have been more careful, as witness under Chromic Acid: "a 10 per cent. solution (gr. j to f 3 j water)."

We are sure that the book will be of great value to every practitioner, and to the surgeon and the specialist particularly.

To the arrangement of the book we have already called attention as meriting great praise. Two most excellent indices are included—one of remedies, the other of diseases.

*A Practical Treatise on Materia Medica, with Especial Reference to the Clinical Application of Drugs.* By JOHN V. SHOEMAKER, A. M., M. D. Second Edition, thoroughly revised. In Two Volumes. Philadelphia and London: The F. A. Davis Co., 1893.

THE second edition of this work compares very favorably with the first, and both editions compare rather unfavorably with other works on similar subjects. It is not that most excellent matter is not included. On the contrary, particularly in the first volume, which treats of therapeutic means other than drugs, there are many things deserving of high praise. But throughout the work the good matter has been so surrounded by and buried beneath many words on long-forgotten drugs and applications, tables, formulae, preparations, combinations, etc., that much that is important has thereby been robbed of proper consideration, and the reader wearies of removing layer after layer of wrapper and covering to reach the small and valuable matter contained within.

If we regard the work as encyclopædic, we can well understand how it might be of value, for certainly it contains more varied information on its subject than we remember ever to have seen collected. Thus, when in reading we might encounter drugs and therapeutic processes unfamiliar to us, and not contained in other books on materia medica, we should turn to Dr. Shoemaker's work in expectation of having our curiosity rewarded. This, to our mind, would constitute its field of usefulness.

The indices, of which there are two (one of diseases and the other of drugs), and the table of doses are as complete as the text and as exhaustive.

The appearance of the volumes would suggest motives of economy on the part of the publishers.

*The Structures in the Mesosalpinx.* Their Normal and Pathological Anatomy. By J. W. BALLANTYNE, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh, etc., and J. D. WILLIAMS, M. D., B. Sc., Edinburgh: Oliver and Boyd, 1893. Pp. 51. [Price, 2s. 6d.]

THIS is a contribution to our knowledge of the annexa of the uterus, the mesosalpinx being the fold of the broad ligament that envelops the Fallopian tubes. It embraces the results derived from the study of two hundred and twenty broad ligaments, and is a careful *résumé* of existing knowledge supplemented by additional observations. There is an excellent discussion of those curious fetal relics known as the organ of Rosenmüller, with the pathological conditions derived therefrom.

## Miscellany.

THE World's Congress Auxiliary of the World's Columbian Exposition.—The Twentieth National Conference of Charities and Correction



will be in session on June 8th, 9th, 10th, and 11th, under the presidency of Mr. H. H. Hart, of St. Paul.

The International Congress of Charities, Correction, and Philanthropy will hold its meetings on June 12th, 13th, 14th, 15th, 16th, 17th, and 18th. Of this congress, the Section in the Hospital Care of the Sick, the Training of Nurses, Dispensary Work, and First Aid to the Injured has announced papers as follows:

The Organization of Boards of Trustees of Hospitals and their Duties, by Mr. Richard Wood, of Philadelphia; The Relations of Nurses' Training Schools to Hospitals, by Miss L. L. Dock, of Baltimore; The Relations of the Medical Staff to the Governing Bodies in Hospitals, by Dr. Edward Cowles, of Somerville, Mass.; Hospital Administration, by Dr. H. Merke, of Berlin, Germany; The Relations of Hospitals to Medical Education, by Dr. Henry M. Hurd, of Baltimore; Hospital Accounts and Methods of Book-keeping, by Mr. James R. Lathrop, of New York; Paying Patients in Hospitals, by Dr. H. M. Lyman, of Chicago; a paper (subject to be announced), by Dr. A. Pearce Gould, of London, England; Dispensaries, by Mr. C. C. Savage, of New York; The Church Hospital, by the Rev. A. Rittenhouse, of Philadelphia; Military Movable Hospitals in India, by Dr. Robert Harvey, of the Punjab Frontier Force; Army Hospitals, by Dr. J. L. Notter, of Netley, England; On the Utility, Peculiarities, and Special Needs of Hospitals for Children, by Dr. William Wallis Ord, of London, England; Infectious Wards in General Hospitals, by Dr. G. H. M. Rowe, of Boston; Naval Hospitals, by Dr. James D. Gatewood, of the navy; Army Hospitals, by Dr. A. C. Girard, of the army; Detention Hospitals for Insane and Alcoholic Cases, by Dr. Matthew D. Field, of New York; Cottage Hospitals, by Mr. Francis Vacher, of London, England; Hospital Plans (illustrated by stereopticon views), by Dr. L. S. Pilcher, of Brooklyn; Special Hospitals: Obstetric Hospitals, by Dr. B. C. Hirst, of Philadelphia; Hospitals for Contagious and Infectious Diseases, by Dr. M. L. Davis, of Lancaster, Pa.; French Nursing, by Dr. L. N. Worthington, of Paris, France; French Training Schools, by Dr. Léon Le Forte, of Paris, France; Systems of Hospital Nursing in Amsterdam, by Dr. Edouard Stumpf, of Amsterdam, Holland; Nurses' Homes, by Miss Lett, of Chicago; Hospital Laundries, by Miss Kimber, of New York; Hospital Laundries and Means of Disinfection, by Dr. A. C. Abbott, of Philadelphia; Diet Kitchens in Hospitals, by Dr. H. B. Stehman, of Chicago; Hospital Dietaries, by Miss Boland, of Baltimore; First Help in Hæmorrhage, by Professor von Esmarch, of Kiel, Germany; First Aid to the Injured, Associations for the best Means of Instruction in, and its Place in General Education, by Dr. H. C. Beyer, of the navy; First Aid to the Injured from an Army Standpoint, by Dr. Charles Smart, of the army; An Easy Method of Bedmaking, and Improved Stretcher for Hospital and Military Use, by Dr. E. D. Worthington, of Sherbrooke, P. Q.; The Ambulance Service of New York City, by Mr. George P. Ludlam, of New York; Hospital Saturday and Sunday, by Mr. Frederick F. Cook, of New York.

*The Subsection in Nursing.*—The programme includes the following: The Principles of Nurse-Training, by Miss Florence Nightingale, of England; Training Schools in America, by Miss Sutcliffe, of New York; The Proper Organization of Training Schools in America, by Miss Louise Darche, of New York; Deaconesses, by Pastor Fliedner; Nurses as Heads of Hospitals, by Miss L. Davis, of Philadelphia; The Requirements of Nurses in the Specialties of Nursing, by Miss M. A. Snively, of Toronto, Canada; District Nursing, by Miss Dacre Craven, of London, England; Private Nursing, by Miss A. Hintz, of Boston; Infirmary Nursing, by Miss Josephine de Pledge, of Chelsea, England; Nursing in Almshouses, by Miss A. C. Gibson, of Birmingham, England; Nursing in Sanitariums—Home Hospitals, by Mrs. Bedford Fenwick, of London, England; The Royal British Nurses' Association, by the Princess Christian; Needs for an American Nurses' Association, by Miss Draper, of Chicago; Workhouse Nurses' Association, by Miss L. Twining, of London, England; Alumnae Associations for Nurses, by Miss Isabel Merritt, of Brooklyn; The Nursing of the Insane, by Miss May, of Rochester, N. Y.; Nursing in Scotland, by Miss Lumsden, of Aberdeen, Scotland.

*The Section in the Commitment, Detention, Care, and Treatment of the Insane* has issued the following programme:

Address of Welcome, by the chairman (Dr. G. A. Blumer, of Utica,

N. Y.); The Treatment of Certain Non-mental Maladies in the Insane and the Effects of such Treatment upon the Mental Disease, by Dr. George H. Rohé, of Catonsville, Md.; Diseases of the Heart and Cerebral Arteries as Causes of Insanity, by Dr. W. B. Fletcher, of Indianapolis; What Improvements have been wrought in the Care of the Insane by Means of Nurses' Training Schools, by Dr. C. B. Burr, of Pontiac, Mich.; a paper (title to be announced), by Dr. O. Everts, of College Hill, Ohio; The Care and Treatment of Epileptics, by Dr. Frederick Peterson, of New York; The Importance, which has been and which should be Attached to Expert Medical Testimony in the Commitment of the Insane, by Dr. Stephen Smith, of New York; Reform in the Treatment of the Insane, by Dr. D. Hack Tuke, of London, England; The Care and Custody of the Criminal Insane in the United States, by Dr. H. E. Allison, of New York; The Mental Examination of Convicts, by Dr. Jules Morel, of Ghent, Belgium; The French Law in its Relation to the Irresponsibility of the Insane, by Dr. Victor Parant, of Toulouse, France; Statistics of Insanity in New South Wales, considered with Reference to the Census of 1891, by Dr. Chisholm Ross, of Gladesville, N. S. W.; The Care of the Insane in Canada, by Dr. C. K. Clarke, of Kingston, Ont.; The Care of the Insane in Scotland, by Dr. C. A. Clarke, of Glasgow, Scotland; The Lessons to be Learned from the Lunacy Administration of Scotland (1857-1892), by Dr. T. S. Clouston, of Edinburgh, Scotland.

**A Nova Scotian's Impressions of the Johns Hopkins Hospital.**—In a letter to the *Maritime Medical News*, published in the May number of that journal, Dr. Edward Farrell says:

"My short trip had for its chief object to visit the Johns Hopkins Hospital, to look into its methods of scientific research, its management and its surgical technique, and one comes away feeling that those who have organized the institution have succeeded in making a perfect establishment for the treatment of the sick poor and with every facility for taking a large share in the work of progressive medical science.

"Everything to-day in surgery revolves around the one central idea—asepticism. Pure air, pure water, plenty of soap and water, many nail brushes, scrub, wash, and douche are the order of the day. The surgeon, assistants, nurses, and patient are cleansed and purified before every operation. This is the law of every hospital amphitheatre, carried out to greater perfection in some hospitals than in others, but the principle rules everywhere. In the Johns Hopkins most scrupulous and excessive care is taken to insure thorough cleanliness, or sterilization, if we call it by its modern name.

"Dr. Kelly, the able and talented young chief of the gynecological department, has a large clinic and operates almost daily, most of his operations being in serious cases, including many abdominal sections. He operates with consummate skill and with great rapidity. The quick movement of brain, eye, and hand is admirable, and one can spend many instructive hours beside him in the operating room. All his operations are thoroughly aseptic, and he has every facility to make them so.

"The most important new point noted in this department is the changed position which the operation of hysterectomy now occupies compared with a very short time ago. This operation, which was looked upon as beyond the region of reasonable surgery only three or four years ago, is now regarded as almost as safe an operation as ordinary ovariotomy. Nothing, perhaps, better indicates the rapid progress in this department of surgery than the fact that the fine work of Pozzi on gynecology, the American edition of which was published *only last year*, is in regard to some operative procedures, notably that of hysterectomy, as much out of date to-day as a work twenty years old would be. The intraperitoneal method in hysterectomy is now almost exclusively adopted. Some operators remove the whole uterus, separating it from its vaginal attachments; others divide across the cervix low down, hollow out the stump, and bring the two sides together with sutures; but all, after uniting the divided peritonæum, treat the pelvic cavity as is done in ovariotomy and close the abdominal wound.

"A favorite operation of Dr. Kelly's is the suture of the uterus to the abdominal wall in cases of retroversion. He also makes an excellent



modification of Emmet's operation in the very common condition of relaxed vaginal outlet. A very skillful manipulation is shown in the operation of catheterism of the ureters. This delicate procedure is carried out with more ease than one would suppose. The bladder is first filled with litmus or other colored fluid, and then with properly constructed instruments patient search is made for the opening of the ureter on each side and the instrument introduced. When they are in place the urine, uncolored by the bladder fluid, comes drop by drop each from its catheter, as it is secreted by the kidney. It will be easily seen what a valuable aid to diagnosis this will be in many renal affections. By it can be determined in which kidney disease exists, and the urine as it comes from each organ can be examined separately.

"The general surgical department has for its chief Dr. Halsted, an old pupil of my late much-lamented friend Dr. H. B. Sands, of New York, who was so well known to many of us in this province. Great care, thoroughness, and precision are the chief characteristics of this accomplished surgeon. To be safe in the hands of the operator is certainly the all-important factor for the patient, and this thought grows on you the more you see Halsted operate. The most important operations he did during my visit were a pyrorectomy with gastro-jejunoostomy and the removal of a gall stone from the bile duct. He makes a strong effort in his operations to prevent even the slightest hemorrhage, using dozens of pressure forceps on the bleeding points to gain this object. His operation for the radical cure of hernia gives more promise of success than any one of the many operative procedures tried of late years in this fruitful field for the inventive genius of the surgeon. His buried skin suture is a striking improvement to prevent the stitch scar. In dealing with wounds where it is important to leave little mark the procedure is an advanced step.

"In the medical department the Canadian visitor feels at home, for it is in charge of our distinguished fellow-countryman, Dr. Osler, late of Montreal. One can not feel proud of the honor he reflects upon the profession in Canada by the splendid reputation he is making in his new field of labor.

"The spirit of every department and of the whole of the Johns Hopkins establishment seems to be scientific research. For this all facilities are afforded and every modern appliance that money can buy is obtained to carry out this important object."

**Preliminary Iridectomy in Cases of Cataract.**—In an article entitled *Ten Years' Experience of Cataract Operations*, by Dr. Freeland Fergus, of Glasgow, published in the *British Medical Journal* for May 13th, the author thus states his objections to preliminary iridectomy:

"There are three objections which I have always been in the habit of advancing to students as to the impropriety of a preliminary iridectomy: (a) Two incisions must of necessity give us more corneal astigmatism than one; (b) by a preliminary iridectomy we twice run the risk of infection of the wound; (c) a patient dreads an operation, and there is nothing to be gained in submitting a patient to two operations where one is sufficient and equally good. Moreover, the operation without preliminary iridectomy or, as it is called, the combined extraction, is an immense saving of time. With a preliminary iridectomy the patient first undergoes an operation, is kept in bed for a certain period, then is allowed to go about as blind as ever for a period of six weeks with the prospect of another operation in the near future. Finally the extraction is made, and then there is another period of confinement to bed. The patient is lucky who is allowed to escape here, for not infrequently there are operations for secondary cataract. After combined extraction a patient may be able to leave with the operation finished, except in cases of subsequent secondary cataract, in ten days, and certainly should be out of the hospital in a fortnight, with the treatment finished so far as operative procedure is concerned.

"Quite recently Landolt has given to the world a most valuable contribution on the subject of cataract extraction. In that paper he very strongly advocates the preliminary iridectomy, and that chiefly because it promotes maturity, because it lessens the traumatism at the time of extraction, and because it is easier to rupture the capsule. Far be it from me to say anything contrary to such an authoritative opinion without good ground, for unquestionably Landolt is one of the greatest prac-

tical authorities of Europe at this time. But, no matter how great an authority may be, every man is bound to think matters out for himself, and for the reasons above stated I am convinced that in the large majority of cases preliminary iridectomy is a mistake—a needless infliction to the patient. In a few isolated cases I still employ it, as will be shown when I come to speak of maturation. Further, if it comes to be a case of quoting authorities, then we shall find the balance of number, and possibly even of weight, opposed to it.

"In one point I am inclined seriously to disagree with the opinions expressed in the paper just mentioned. I do not think that a preliminary iridectomy is such a harmless operation as Landolt believes. Again and again in other men's work I have seen a preliminary iridectomy followed by a considerable amount of iritis, and more than once by suppuration of the cornea. No doubt such operations have been faulty and septic; but this only proves one of my propositions—that there is no good in running the double risk of corneal infection if once is sufficient."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and NOT to the editor.*





Fig. 2.

PARALYSIS AGITANS.—Brain cortex from middle of central convolutions showing atrophied cells and granular apical processes. N, neuroglia layer; SP, small pyramidal layer; LP, large pyramidal layer; pp, granular apical processes. (One-sixth objective).



Fig. 3.

PARALYSIS AGITANS.—Brain cortex, another portion of middle of central convolutions, showing granular apical processes of large pyramidal cells, and degeneration of some of the bodies of the cells. (One-sixth objective).

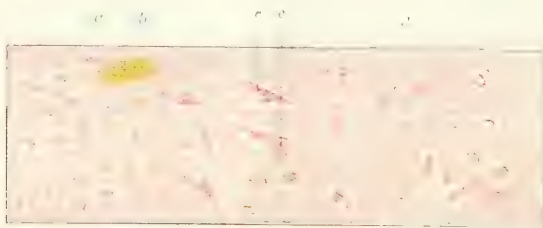


Fig. 4. PARALYSIS AGITANS.—Brain cortex, upper third of central convolutions. a, small pyramidal cells; b, blood vessel; c, cells of 3rd layer; d, cells of 4th layer. (Drawn from one-eighth objective.)

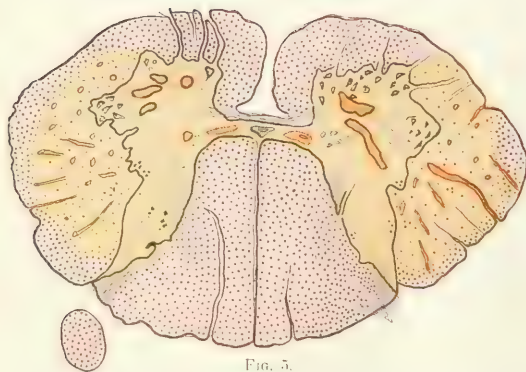


Fig. 5.

PARALYSIS AGITANS.—Level of seven inch cervical segment, showing diffuse lateral sclerosis, degenerated cornual cells, and vascular dilatation, absence of fibrillary network in anterior horns, poverty of cells in central area. Drawn from specimen, stained by Weigert's method, by Edinger apparatus. (Three-inch objective).



Fig. 6.

The same enlarged. a, a, degenerated cells, b, blood-vessels, or spaces left by them. (Two-thirds objective).



## Original Communications.

### SHAKING PALSY:

A CLINICAL AND PATHOLOGICAL STUDY, WITH  
THE REPORTS OF TWO AUTOPSIES.\*

By CHARLES L. DANA, A. M., M. D.,

PROFESSOR OF NERVOUS DISEASES IN  
THE NEW YORK POST-GRADUATE MEDICAL SCHOOL;  
VISITING PHYSICIAN TO BELLEVUE HOSPITAL, ETC.

PARALYSIS agitans is not a very rare disease. In my own experience it ranks in frequency, among chronic neuroses, closely with locomotor ataxia.† Its peculiar symptoms, its distressing and progressive course, its resistance to therapeutic measures, and finally the mysterious effacement of itself on the post-mortem table, make the study of the disease one of special interest. Yet, strange to say, very little has been done in this direction by American neurologists. I can not find the report of any autopsy made on this side of the Atlantic, though there are a number of excellent clinical studies.

While the larger part of my remarks will be devoted to the pathological aspect of paralysis agitans, I wish first to call attention to certain clinical phenomena which are, I think, fundamental, but which are not usually very much emphasized.

#### CLINICAL.

We all know that the dominant symptoms of the disease are tremor, rigidity with contractures, a slowness in initiating muscular movements, sensory and vaso-motor disturbances, and terminal paralysis.

Among these symptoms I want to recall to you first the peculiar hitch in volition, so to speak, which is so characteristic, and which I believe gives us some clew to the seat of the trouble. The patient, when asked to stand up, apparently makes the effort; his will, or I had better say here, his cortical centers work; he is conscious of effort, but the muscles do not respond. Somewhere between the cortex and the muscles the impulse is checked momentarily, as though a stream were temporarily dammed up, or a door were found stuck in the face of a man who had his hand on the knob. Having once got started, the movements are made with a fair degree of readiness and strength. But there is a block slipped into his motory mechanism every now and then. There is a hitch in it also when he attempts a new set of movements. If walking, he must come to a

full stop before he can turn a corner. The automatic movements of walking or running, once initiated, pass beyond his control for a moment. There is something which cuts off the governing mechanism. Hence the slowness, awkwardness, abasia, and festination of this disease. These, which we may call the "hitch symptoms," are very curious and will be referred to later in considering the pathology.

A second class of phenomena which I think deserve more attention than it has received, is that pertaining to the vaso-motor system and the blood. Very soon, often within six months of the inception of the disease, there appears a peculiar flushing of the face which gives to patients, along with the facial rigidity, a most characteristic physiognomy. There is apparently also an increase of vascularity in the skin which causes sensations of heat and fever; the sudoriferous glands are stimulated. The increased vascularity affects the muscles, irritating the muscular nerves and causing the fidgets and restlessness so commonly observed.

A study of the pulse will show that it is at first feeble and soft; later it is full, rather tense, and sometimes a little quickened. I have made a number of sphygmographic tracings which I submit to you here. These show an unusual amplitude of the curve, with evidences of considerable vascular fullness. They resemble the sphygmograms of arterial fibrosis, but there is a weaker percussion wave indicating distended or dilated vessels. The patients, however, do not suffer from throbbing or bounding feelings or from palpitations. This is because the heart is not hypertrophied or overactive, but, if anything, is less strong than normal.

I believe it to be shown that we have in this disease all the evidences of a pretty general vaso-motor paralysis. This affects the skin and muscular systems, the spinal cord and nerves, perhaps some of the abdominal viscera, but not, as I shall show later, the cerebral hemispheres or cerebellum.

I would remind you in this connection that occasionally tachycardia occurs.

There is a third class of symptoms which I believe of essential importance: it is that which includes the disturbances of the blood and of metabolism. In a certain proportion of cases of shaking palsy attacks of purpura hemorrhagica occur. I have a patient who has an attack every one or two years, each attack lasting several weeks. In other cases glycosuria is present and the amount of sugar may be considerable. In some cases there is an excessive discharge of phosphates.\*

Through the kindness of Dr. Thomas S. Southworth, of this city, I have been able to have made very careful examinations of the blood of two typical cases of paralysis agitans—one in an early and one an advanced case. The cor-

\* Read before the Philadelphia Neurological Society, February 27, 1893.

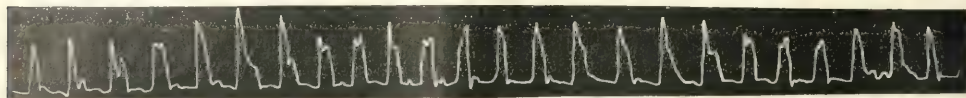
† Among about two thousand old people and paupers in La Salpêtrière, paralysis agitans made up four per cent. of the chronic nervous diseases, standing fifth in the list (Ordenstein).

There were twenty-two fatal cases reported in England in one year (Sanders).

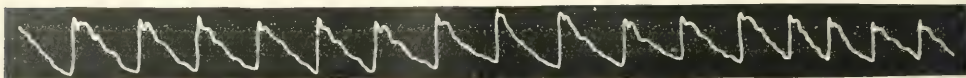
Eulenberg (Berlin), among ten thousand four hundred and twenty-four nervous cases, found forty-six cases of paralysis agitans = 0.44 per cent.

O. Berger (Breslau) states that among five thousand nervous cases 0.6 per cent. were paralysis agitans. This is somewhat less than the percentage in my own experience, which is about one per cent.

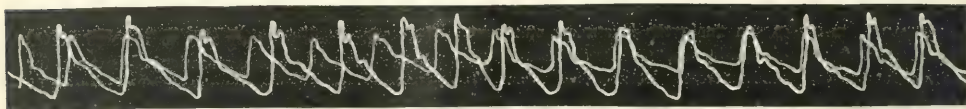
\* While Cheron (*Le Prog. méd.*, 1877, No. 48) states that there is polyuria and phosphaturia in this disease, Gürtler (*Archiv f. Psych.*, Bd. xiv, 1883), Ewald (*Berlin klin. Woch.*, 1883, Nos. 32 and 33), and Hüber (Virchow's *Archiv*, 108, p. 52), do not find any special anomalies.



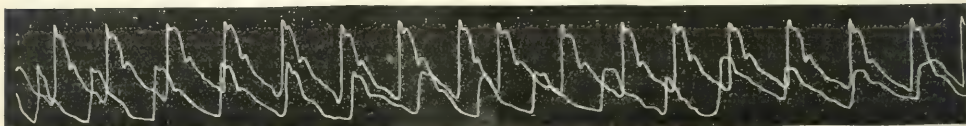
I.—D., male, aged forty-five : duration, seven years.



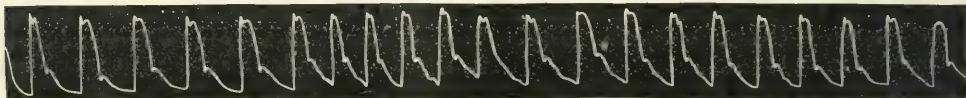
II.—Radial pulse, paralysis-agitans. J. C., male, aged forty-six : duration, six years.



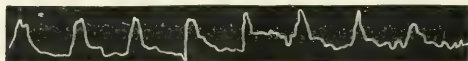
III.—K., male, aged fifty-seven : duration three years.



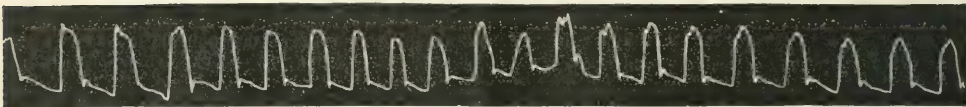
IV.—Same case.



V.—F., male, aged seventy-five : duration, fifteen years : not advanced.



VI.—Mansson, male, aged eighty : duration unknown : case advanced and senile.



VII.—H., male, aged eighty-six : duration, three years : advanced stage, very senile.

puscles were counted, the hæmoglobin measured, and the staining reactions made. The results are incorporated here :

CASE I.—J. H. T., male, aged forty-three ; duration two years.

*Fresh Blood.*—Red cells of good color and thickness. Cells vary slightly in size, with some tendency to oval form. Average of good size ; some large cells, no small ones. Hæmoglobin, ninety-one per cent. Reds, 4,850,000 per c. mm. Whites, 4,700 per c. mm. Ratio white to red, 1 to 1,030.

*Stains.*—Lymphocytes..... 28 per cent. ;  
Large uninuclear leucocytes... 6 per cent. ;

Transitional form..... 4 per cent. ;  
Multinuclear leucocytes..... 62 per cent. ;  
Eosinophilous cells..... 0 per cent.

*Diagnosis.*—Very fair condition of the blood, the chief variations from normal being absence of eosinophilous cells.

CASE II.—J. C., male, aged forty-six ; duration six years ; walking stage, but great tremor and pain.

*Fresh Specimen.*—Red cells light in color, fair size and shape ; average somewhat smaller than usual ; cells vary somewhat in size ; show less resistance ; crenate rather quickly. Some oval cells. Hæmoglobin, seventy-five per cent. Reds, 5,216,000 per c. mm. Whites, 4,700 per c. mm. Ratio white to red, 1 to 1,110.

<i>Ehrlich Stains.</i> —Lymphocytes.....	18 per cent.;
Large uninuclear leucocytes.....	1 per cent.;
Transitional form.....	2 per cent.;
Multinuclear leucocytes.....	77 per cent.;
Eosinophilous cells.....	2 per cent.

*Diagnosis.*—Anæmia of chlorotic type; lessened percentage of hæmoglobin, and decreased resistance of red cells.

Finally, there is another very dominant class of symptoms, and these are the sensory. The disease is not very rarely preceded by a sciatica. Neuralgic and rheumatic pains and distressing sensations of heat and cold are usually present during a good part of its course and add greatly to the patient's sufferings.

#### PATHOLOGICAL.

I now come to the subject of the pathological anatomy of the disease.

Below is a list of the authors who have reported cases and autopsies of paralysis agitans or diseases with symptoms resembling it:

1. Parkinson, 1817. *Essay on Shaking Palsy*, London. Sclerosis in pons and medulla.
2. M. Hall. Sclerosis of the pons and corpora quadrigemina.
3. Stofella, 1861. *Wiener Wochenblatt*, xvii, 37. Atrophy of brain with secondary degeneration about the ventricles.
4. Oppolzer, 1881. *Wien. med. Woch.* Sclerosis in the medulla.
5. Skoda, 1862. *Wien. med. Halle*, iii, 13. Sclerosis of the walls of the ventricles; softening of the pons, medulla, and parts of the cord.
- 6 and 7. Ordenstein. *Thèse de Paris*, 1867. Two cases. First case: duration, thirty-four years; brain normal; cord, some induration and atrophy; "rarefaction" of nerve fibers; nerves normal. Second case: female, aged fifty-eight; duration, twenty years; softening of the pons and cerebral peduncles (specimen badly preserved).
8. Leyden, 1864. Sarcoma in left optic thalamus and compression of pons.
9. Petrusaeus, 1863. *Hospitals-Tidende*, No. 41, 1861.
10. Virchow. Osteoma in left optic thalamus.
11. Meschale, 1870. *Virchow's Archiv*, Bd. l, p. 297. Heteropia and sclerosis of cord. A case of multiple sclerosis in a boy.
12. Bourillon, 1870. *Gazette des hôp.*, Nos. 50, 51. A case of multiple sclerosis.
- 13, 14, and 15. Joffroy, 1871-72. *Arch. de physiologie*, vol. iv, p. 106. Three cases. Brain not examined.
16. Ball, 1871. Case cited by Joffroy, *loc. cit.* Brain not examined.
17. Murchison and Cayley, 1871. *Trans. of the Lond. Path. Soc.*, xxii, p. 24 (described later).
18. Meynert, 1871. *Wien. med. Presse*, p. 647. A case of general paralysis with symptoms of paralysis agitans; lesion in the corpus striatum.
19. Chvostak, 1871. *Wien. med. Woch.*, Nos. 37-39. Paralysis agitans with atrophy of extremities of left side. Intentional tremor. Sclerosis of right temporal lobe and Ammon's horn. Cord and nerves not examined.
20. Leyden, 1876. *Arch. f. Psychiat.*, Bd. vi, p. 293. A case of chronic atrophic paralysis (with paralysis agitans), chronic interstitial neuritis with myositis, atrophy, and lipomatosis. Atrophy of left anterior horn of lumbar swelling; vascular disease in the neighborhood.
21. Westphal, 1876. *Charité-Annalen*, Bd. iv, p. 361. Nothing found. Brain not examined; no details.
22. Fr. Schultz, 1876. Case of tremor of left arm and hand; no history. Post mortem showed multiple sclerosis or disseminated myelitis.
23. Rosenthal. Quoted by Eulenburg. Softened focus in medulla.
24. Leubuscher. A case of fibrous tumor of the pons.

25. Dowse, 1878. *Trans. of the Lond. Path. Soc.*, xxiv, p. 17 (described later).

26. Herterich, 1879. *Dissertat. Würzburg*. Sclerotic focus in spinal cord and in medulla (described later).

27. Luy, 1881. *L'Encéphale*, i, p. 649. Cells of pons twice normal size—i. e., 40 to 50  $\mu$  in diameter instead of 20 to 25  $\mu$ .

28 and 29. Dubief, 1881, Paris. Essai sur la nature des lésions dans la maladie de Parkinson; two cases (described later).

30. Raymond, 1883. *Gaz. méd. de Paris*, p. 409.

31. Carderelli, 1883. *Riv. clin. e terap.*, 1883, v, p. 172. A case of cervical myelitis.

32. Heimann, 1888. *Ueber Schüttellähmung*. Autopsy by Oppenheim negative; no details; nerves and muscles not examined.

33. Von Sass, 1891. *St. Petersburg. med. Woch.*, p. 165 (described later).

34, 35, and 36. Koller, 1891. *Virchow's Arch.*, Bd. exxv, p. 287. Three cases (described later).

37. Borgherini, 1891. *Rivista sperim. de Frenat.*, vol. xvii, p. 26 (described later).

38. Wienskowitz. *Dissertation Breslau*, 1883, p. 58. Duration five years. Vessels at base of brain atheromatous and dilated. Brain normal. Cerebral and spinal meninges normal. Sarcomatous tumors on the cauda equina, right side, just below lumbar swelling. No microscopical examination.

39. Kuhne. *Dissertation Berlin*, 1872. Male, aged forty-eight; duration, four years. No change, microscopical or gross; no details.

40 and 41. Bauer, J. *Arch. d. Anat. allg. Krankh. u. Medicin*, 1878, i, 134. Two cases. Atrophy of brain and sclerosis of cord. Paper inaccessible to me.

42. Denange. *Rev. méd. de l'Est*, Oct. 15, 1879. Slight sclerotic changes in the anterior and lateral columns; periependymitis and sub-inflammatory changes in posterior nerve roots and columns of Goll and Clark.

43 and 44. Teissier. *Lyon méd.*, 1888, p. 351. Two cases. Diffuse sclerosis of lateral columns; no details.\*

A study of these cases will show that after the original description of the disease by Parkinson in 1817 practically no pathological studies were made of it until 1861 and 1862. Under the stimulus to pathology given by the Vienna school, a number of autopsies were made, but the results were of little value. The disease was not sufficiently known to be surely recognized, and the microscopical examinations were very incompletely made.

In the next decade, when Charcot had taught the profession to distinguish shaking palsy from coarser organic disease, many more cases began to be reported. The results, however, were still reported negative, or else it was found that a mistake in diagnosis had been made.

In the last six years some very carefully examined cases have been published, and I find that in proportion as these examinations have been minute and thorough they begin to agree with each other and the negative character of the findings to disappear.

I do not wish to appear arbitrary, but it is my opinion that out of the forty-four reports of autopsies in thirty-nine cases, nearly all of which I have read in the originals, only fourteen reports have any scientific value whatever. In all the other cases, so far as I can learn, the diagnosis was wrong or the examination was incomplete. For example, Charcot states that he has examined the cords in three cases and found nothing. This is all he says. Westphal reports

\* Since this was written three more autopsies have been reported by Ketcher (*Zeitschr. f. Heilkunde*).



a case in which he says he found nothing, but he gives no details and he did not examine the brain. Heimann, in a graduating thesis, 1888 (*loc. cit.*), reports a case in which the autopsy was made by Oppenheim with negative result; but here we have only this bald statement.

The cases which merit study by virtue of the fact that the disease was evidently diagnosed during life, and the central nervous system carefully preserved and examined by modern methods, are the following: Three by Joffroy, one by Dowse, one by Murchison, one by von Sass, three by Koller, one by Borgherini, two by Dubief, one by Teissier, one by Ordenstein—total, fourteen.

Of these fourteen, the cases of Dubief, von Sass, Koller, and Borgherini are much the most valuable. I will, however, give some details of them all.

*Joffroy.* CASE I.—Woman, aged forty-seven; duration of disease, six years: Brain: arteries not atheromatous; no microscopical examination. Spinal cord: central canal filled and distended, amyloid bodies, pigmentary degeneration of the cranial cells. Medulla: some connective-tissue proliferation in the neighborhood of the columns, pigmentary degeneration of nuclear cells.

CASE II.—Female, aged sixty-seven; duration, eight years. Brain not examined. Cord: central canal dilated and filled with degenerated cells; amyloid bodies in cord substance; cranial cells show pigmentation and atrophy with loss of processes; walls of vessels dilated and surrounded by dilated perivascular spaces—in other words, an appearance of congestion.

CASE III.—Female, aged sixty-eight; duration, over ten years; mental complications in last two years. Brain not examined. Cord and medulla presented much the same appearance as in Cases I and II. A small sclerotic patch was found in the lower part of the fourth ventricle.

*Dowse and Kisteman.* CASE I.—Female, aged fifty-two; duration of disease, twelve years. Weight of brain, fifty-three ounces; arteries slightly atheromatous. There is described a so-called fuscous or granular degeneration of the cells of the corpus dentatum and of the folia of the cerebellum. The corpora striata were honeycombed with a miliary degeneration; slighter changes were found in the optic thalamus. Cord: there was a sclerosis of the periphery of the cord, especially over the posterior and right lateral columns, also a colloid degeneration in this neighborhood. The cells of the anterior horns showed degenerative changes. The vessels were much more dilated and even sacculated with large perivascular spaces. In the medulla the cells of the olivary body were pigmented and degenerated. The nucleus of the ninth nerve showed degeneration, and also that of the eighth. The general condition seems to have been one of quite widely extended congestion of the central parts of the spinal cord and medulla, with very marked degenerations affecting the cells of both the brain and medulla and spinal cord.

*Murchison and Cayley.* CASE I.—Male, aged twenty-one; duration, twelve years. Death due to typhus. Brain not examined. Central part of the cord completely transformed, filled with leucocytes extending into and occluding the central gelatinous substance; strong vascular injection of the cord and slight blood extravasations due probably to typhus. There was a thickening of the periphery of the spinal cord and connective-tissue increase throughout the substance of the cord, especially of the cervical and dorsal parts and in the posterior columns.

*Von Sass.* CASE I.—Female, aged twenty-one; duration, twenty years. Brain and medulla not examined. The cord showed thickened arteries, corpora amylacea, increase of connective tissue throughout its substance. Central canal in many

places obliterated; proliferation of the cells of the ependyma. A small focus of sclerosis was found in the median part of the floor of the medulla. Peripheral nerves: a proliferation of connective-tissue sheaths with increase of nuclei; some degeneration of fibers; vessels thickened. Diagnosis here was made of a chronic interstitial neuritis. Muscles: the fibers were smaller, striation indistinct with increase of nuclei. Diagnosis here was made of chronic myositis similar to that found, however, in old people, only more marked.

*H. Koller.* CASE I.—Female, aged seventy-six; weak, bed-ridden, and demented at the time of death; duration of disease not stated.

CASE II.—Male, aged sixty-nine; no history given or known.

CASE III.—Male, aged seventy-one; duration, seven years; cause, trauma with fracture of clavicle. The changes found post mortem in these three cases were described together by Koller, and it is inferred that they were all more or less present in each case. Brain showed congestion and edema; the arteries were moderately thickened but not atheromatous. In one case there was a small focus of softening in the left hemisphere near the posterior end of the caudate nucleus; a second smaller focus was found beneath the cortex in the occipital lobe. In another case the brain was not examined, and in a third case the findings in the brain were negative. Spinal cord: there was thickening of the pia mater, especially in the anterior region; the posterior and lateral columns showed a considerable proliferation of connective tissue with numerous dilated vessels. The sclerosis in these areas seems to have started from the neighborhood of the blood-vessels. There is a periarthritis described by this author on which he lays very much stress. The motor cells showed some pigmentation and there was generally a granular, often coarsely granular, degeneration. Some change in the myelin sheaths of the nerves was also noted. On the whole, the morbid process seemed to affect the vessels and connective tissue most seriously. Koller describes three grades of changes discovered in the cords. First grade, the perivascular thickening; second, proliferation of neuroglia tissue; third, proliferation of nuclei. Koller lays, as stated, much stress upon the periarthritis, which he seems to think to be somewhat characteristic, and also affirms his belief that there is an extensive proliferation of connective tissue originating from the blood-vessels and affecting specially the lateral and posterior columns and the central parts of the cord. Pigmentary and other degeneration of the cells were also observed. He notes furthermore a proliferation of the endothelium of some of the blood-vessels and finds some of them stopped up with hyaline masses. He looks upon paralysis agitans as a process half way between senility and multiple sclerosis—a diffuse and perivascular rather than a multiple sclerosis.

*Borgherini.*—For a translation of the report of this case I am indebted to my friend Dr. Joseph Collins.

Patient died of pneumonia. Post-mortem showed the lesions of that disease and, in addition, a widespread arterio-sclerosis.

Pieces of the cerebrum, cerebellum, medulla, spinal cord, vagus, the median, the anterior tibial, one of the cervical ganglia, and some muscular fibers of the biceps were taken for microscopical examination (preserved in Müller's fluid). The microscopical examination of the brain revealed a moderate alteration of the capillary vessels, the walls thick and rich in nuclei, the lumen enlarged, and the lymphatics and the perivascular spaces likewise enlarged. There could be seen small connective-tissue fibrillae starting out from the capillaries, shooting into the surrounding nerve tissue, and a certain number of amyloid corpuscles were deposited in the perivascular lymph spaces alongside these connective-tissue buddings. The small ganglionic cells and the nerve fibers seemed to be normal. In the cere-

bellum the same conditions were noticed as in the brain. The changes in the pons were very conspicuous, and they affected the vessels as well as the nerve matter. The vascular lesions were of the same nature as those of the brain, with the exception that here they were more marked. The vessel walls were very thick; the smaller ones presented some aneurysmal dilatations; the lymphatics and perivascular lymph spaces were very ample. At the periphery, under the pia mater, the whole external surface of the piece was covered with a connective-tissue layer, and this sent fibers into the substance of the tissue (the pons). The ganglionic cells of the pons were pigmented, their processes stunted, their general outline deformed and surrounded by large perivascular lymph spaces. The ependyma of the fourth ventricle appeared thickened; the roof appeared normal, with some epithelial thickening; with large nuclei and overgrowth of the capillary vessels. The gray substance on which this granular substance rested was atrophied; numerous vacuous places could be seen and many large capillary vessels. The cellular substance of the nerve matter was pigmented, and in some places this was so extensive as to render the protoplasm opaque. Such atrophy could be observed, with a very little difference of degree, principally in the nuclei of the vagus, the glosso-pharyngeal, the facial, and motor oculi. Scattered throughout the atrophied gray substance, in the floor of the fourth ventricle and principally around the vessels, were found numerous large amyloid corpuscles. The restiform bodies appeared normal. In the medulla the periphery of that body presented similar changes to those noticed at the periphery of the pons. Large prolongations of connective tissue went in from the surface to the medulla and principally into the pyramidal tracts. The neuroglia appeared everywhere thickened. The vascular changes were the same as mentioned in the pons, and there was seen considerable rarefaction of the nervous substance (enlargement of the perivascular lymph spaces), particularly in the region of the external arciform fibers and in the region of the inferior olives. The ganglionic elements of the olives and the interolivary bundles seem normal. In those portions of the medulla where the rarefaction already spoken of existed there was to be seen remarkable enlargement of the smaller blood-vessels and with thick walls. The neuroglia had a sort of fibrous look, and the amyloid corpuscles were here most abundant.

In the spinal cord the changes were most noticeable in the cervical and upper dorsal portion. The periphery of the cord was encircled by a connective-tissue ring; the neuroglia was thickened and filled with nuclei; in the gray substance, particularly in the posterior horns, there were numerous greatly enlarged blood-vessels, and the nerve processes seemed short and broken. The central canal was encroached upon by numerous nuclei. The ganglionic cells were fairly well preserved. In the spinal roots several atrophied fibers existed. The vagus, median, and external tibial presented prominent alterations, consisting of atrophy of several of the nerve bundles, with increase of the connective interstitial tissue and of alterations in the capillary vessels. In the cervical ganglion examined the atrophy of the cellular elements was quite well marked; the blood-vessels showed marvelous examples of miliary aneurysms; the interstitial connective tissue was abundant. The muscular fibers of the peronei did not appear much altered, but those taken from the biceps appeared atrophied and excessively pigmented. The fibers were thin and broken down, the perimysium thickened and filled with nuclei and other evidences of degeneration (myositis).

The histological examination proves, before anything else, that there were prominent alterations in the central

as well as the peripheral nervous system, and in the sympathetic as well as in the muscles. The most prominent lesions were those affecting the blood-vessels; but, at the same time, groups of nervous elements were also altered, principally in the gray substance around the fourth ventricle and in the gray matter of the spinal cord in its upper portions. The white substance was not entirely spared, but it appeared much less affected. The alterations in the sympathetic system were very conspicuous, while in the cerebrum and cerebellum the changes were not so conspicuous; they were intensified in the pons and medulla and decreasing as we passed into and down the spinal cord.

From this point the paper is concerned with a justification of his interpretation of the lesions found, and the dependence of the symptoms upon them.

He believes that greatest stress should be laid on the vascular changes.

He says later that he truly believes the pathogenesis of shaking palsy is the alteration of the capillary vessels and the small arterioles, and this is followed by secondary changes of a degenerative nature in surrounding parenchymatous cells.

*Herterich.*—Female, aged sixty-six; duration, ten years. Disease followed typhoid; autopsy not made till thirty-six hours after death. It was noted that at the time of her death the temperature gradually rose from 37° to 40.4° C. She had some disturbances of speech and dysphagia at this time. Eight hours after death the temperature was 39° C. There was a very strong rigor mortis. At the upper end of the cervical cord there was seen a heteropia (?) of the gray matter; in the cervical cord there was a yellowish spot of fatty degeneration in the left anterior horn; lower down in the cervical swelling some degeneration of the left lateral column and intermediate gray matter was noticed; lower down still were slight traces of sclerosis in the left anterior and right posterior columns. In the lumbar cord the gray matter at the periphery of the anterior horn was yellowish. There was a general degeneration of the floor of the fourth ventricle 2 mm. deep. There was a thickening of the ependyma, and there was a softened focus in the pons extending into the left crus. No microscopical examination. Commentary: It is evident that this was a complicated case and not one of pure paralysis agitans.

*Dubief.*—Dubief reports two cases which died of intercurrent maladies—namely, of cardiac disease and cancer, in a comparatively early stage of paralysis agitans; hence he thinks his examinations of special importance.

*Case I.*—Female, aged fifty-seven; duration, six years. Patient had had several attacks of acute rheumatism while suffering from her palsy.

*Post-mortem.*—Spinal cord: There was a thickening of the pia and distention of the central canal, with thickening of the ependyma. The thickened pia mater produced a peripheral sclerosis irregularly distributed and extending into the substance of the cord along the septa, forming a kind of diffused sclerosis. There were amyloid bodies noticed around the blood-vessels. The cells of the anterior horns were strongly pigmented; they also showed a peculiar reaction to stains, evidencing a degeneration of the protoplasm of the cell substance; only the nucleus and part immediately around it would take up the carmine well. The processes were varicose and imperfect. Dubief describes a swollen condition of the axis cylinder of the nerve fibers in the cord. Similar lesions to the above were noticed in the pons and medulla, but they were less advanced here.

Brain and cerebellum normal. The nerves of the brachial plexus showed great increase of connective tissue.

**Case II.**—Male, aged sixty-seven. Patient was a very hard drinker, sometimes taking five litres of wine a day. Seventeen years before his death he had had an attack of sciatica. His tremor began fifteen years before death; he died of cancer. The spinal cord of this case presented lesions somewhat like those in Case I. In the brain he found fourteen small echinococcus cysts of about 1 c. c. capacity. They were distributed over the cortex; one was posterior to the right optic thalamus, one in the head of the caudate nucleus. The arteries were atheromatous, the membranes thickened. Dubief thinks that paralysis agitans has lesions of senility, only differing from those of senility in their exaggeration and their precocity.

*The Author's Cases:*

**Case I.**—Regina S., Germany, married, aged fifty-six, admitted to Montefiore Home in September, 1887. About two years before admission, while doing some work in a house, she was much frightened by the breaking out of a fire in the store in front. At the time she experienced a sensation of weakness in the back. Several days later she noticed that there was a tremor in the left hand. This in time extended to the whole arm, then to the right hand and arm, afterward to the left lower extremity, and finally to the right. In the lower extremities the tremor has been very mild. She has suffered much with pain of the small of the back and for the past year has not been able to straighten the same. Also finds that the left side is much weaker than the right, so that she can not bear her weight on it in walking. Lately her feet and ankles have been swollen in the evening. At times she has much pain in the left shoulder. Appetite is fair; bowels regular; patient is fairly nourished; tongue slightly coated. Walks and stands with a marked stoop and favors the left side. Grasp of left hand much weaker than right, which is itself not very strong. Muscles of arms and shoulders have a much firmer feeling than normal. Pulse fair. Heart and lungs negative. No œdema. Urine negative.

**Treatment.**—House diet. Hyosc. hydrobrom., gr.  $\frac{1}{10}$ , t. i. d. after meals. Rub back with chloroform liniment, aconite, and alcohol.

**October 2d.**—Pain in back is somewhat easier. Slight œdema is noticeable about the ankles in the evening. Is able to be about, but favors the left leg very much in walking. Is able to eat alone, but can carry food to mouth only very slowly and with some difficulty. Tremor of left hand more marked than right, but neither is very much accentuated.

**13th.**—Condition remains about the same. At times complains of much pain in right shoulder and in the left ankle. Appetite is fair; bowels regular. Omit hyosc. hydrobrom. Potass. brom., gr. xv, t. i. d. Sol. menthol extern. p. r. n.

**24th.**—Occasionally complains of headache, always frontal, and during the latter part of the day. Thinks she is somewhat stronger. Can go up and down stairs without difficulty. Potass. brom., gr. xx, t. i. d.

**November 10, 1887.**—Is fairly comfortable. Continues occasionally to complain of pains in back, shoulder, and left leg. Walks very much stooped.

**22d.**—Appetite is rather poor. Sometimes complains of pains in the epigastric region; relieved by a mustard plaster.

Omit potass. brom. Tincture gentian co., 3j., half an hour before meals.

**December 7th.**—Appetite is improved. Patient is becoming more helpless and has more difficulty in feeding herself. Left arm is quite stiff and almost useless. Continues to have pains in various parts of the body occasionally. Omit tincture gentian. co. Potass. brom., gr. x, t. i. d.

**January 10, 1888.**—Is becoming more and more helpless. Frequently has pain in shoulders and arms. Some œdema of feet and legs, more pronounced on left side than on right. Appetite is good; bowels regular.

**February 21st.**—Continues to have much pain in shoulders at times. Appetite is poor. Occasionally has intestinal pain after eating. Also complains of headache occasionally, which is relieved by application of menthol solution.

**March 12th.**—General condition remains about the same.

**20th.**—Is unable to feed herself both on account of tremor and on account of the slowness with which she must carry articles of food to her mouth. At times has much pain in small of back, so that she must go to bed.

**June 20th.**—Patient's strength remains good. Is able to go up and down stairs, although with some difficulty. Appetite is very fair. Eats very little meat. Omit potass. brom.

**August 17th.**—Suffers much from the heat and flies. When latter settle on her face she is unable to drive them away on account of difficulty she has in moving her arms.

**September 20th.**—On account of cooler weather has been much more comfortable for the past three weeks. Occasionally complains much of abdominal cramps; relieved by mustard plaster or tr. zingib., 3 ss.

**October 20th.**—Is quite helpless, sitting in the same position in her arm-chair the greater part of day. Usually is quite cheerful.



FIG. 1.—Paralysis agitans, late stage.

**November 15th.**—General condition remains about the same.

**December 4th.**—Has lately complained much of cramps in abdomen, which are relieved by simple enema. After sitting



up a long time has pain in small of back. General condition remains about the same.

*January 1, 1889.*—Is unable to pass urine without the aid of hot applications to lower abdomen.

*15th.*—Has vomited several times lately. Still complains of cramps in abdomen. Bowels are sometimes loose, sometimes constipated. Still trouble in passing water. Potass. acet., gr. xx, every four hours. Strychn. sulph., gr.  $\frac{x}{10}$  t. i. d.

Patient became gradually weaker and died of exhaustion in March, 1889, five years after onset of her malady.

*Autopsy*, made by Dr. Rosenthal, to whom I am indebted for the foregoing clinical notes.—Notes of the examination of the organs other than the brain and cord were not obtained, nor have I any records of the fresh appearance of these latter organs. The brain and cord were hardened in Müller's fluid. Portions were taken and stained in carminate of sodium by Weigert's method, also in Delafield's hæmatoxylin, aniline blue, Congo red, osmic acid, and carmin.

The central convolutions of the right hemisphere were divided into ten equal parts, and sections were made from each of them. Sections were also made of the internal capsule, basal ganglia, pons, medulla, cerebellum, eight levels of the cord, and of the cauda equina. No portions of the muscle or nerve were obtained. The sections were examined with  $\frac{3}{8}$ -,  $\frac{1}{4}$ -, and  $\frac{1}{2}$ -inch objectives.

*Motor Cortex.*—The meninges were not thickened; neuroglia layer normal. There is considerable increase in capillary vascularity; some dilatation of vessels; their walls are not notably thickened. No evidence of exudation or perivascular dilatation. The neuroglia tissue is not much increased.

In the *paracentral lobule* there is considerable vascularity, a good many dilated and empty vascular spaces. This is not observed in all parts. Some of the nerve cells are apparently normal, but the pericellular spaces of the angular (second) and pyramidal (third) layer are large and dilated. In one area only I find bad cells with atrophied processes, bodies divided as though going to pieces, nuclei indistinct.

In some sections of the *upper and middle motor cortex* I find cells which have lost their sharp contour. The apical processes seem granular, are pale, and stain badly. The bodies have apparently two nuclei, and look as though they were breaking up. In some cases the process seems dropping off and the cell falling to pieces (Figs. 2, 3).

In other sections there can be seen numbers of fine granular apical processes which seem to have lost their bodies, but remnants of the latter are to be found on careful examination. It gives the field the curious appearance of a number of minute worms (Fig. 2).

The lower third of the motor convolutions shows reasonably normal cells, vessels, and neuroglia.

The whole of the motor area, when compared with that of a case of chorea and one of multiple neuritis, shows rather more vascularity, more neuroglia nuclei, and rather poorer cells.

The fiber network of the cortex, as shown by osmic acid and Weigert stains, shows nothing abnormal.

*Internal capsule* is normal.

The *optic thalamus* shows a very fine capillary injection (as in normal brains), no connective-tissue proliferation, no extravasations or exudates; cells normal, so far as I can tell. There is perhaps an intenser congestion than normal in central parts and at the boundary between the thalamus and the capsule. Some large distended vessels are seen in these parts.

*Cerebral peduncles* (crus and tegmentum), *substantia nigra*, *red nuclei*, *corpora quadrigemina*, *pons nuclei*, and *pyramidal tracts* normal.

*Aqueduct of Sylvius.*—The epithelial lining is in parts gone, but is mostly in its place. It is covered in parts with several layers of proliferated round cells.

*Cranial Nuclei.*—The third nerve: The cells are normal, but occasionally there is a large pericellular space. There is an excess of neuroglia nuclei and connective tissue in the neighborhood. The third nerve fibers are normal.

Sixth nerve nucleus normal.

Seventh: Cells are granular, no nucleoli; many processes gone; nerve network stains badly; some cells are pigmented, and pericellular spaces large. The change is more marked on one side. The cells are very large, but not abnormally so, in my opinion. It may be these cells of the seventh nucleus which Luys refers to as the hypertrophied cells of the pons.

The motor tracts at this level are normal. The floor of the medulla is normal.

Ninth (glossopharyngeal): This nucleus shows degeneration of cells of same kind as in tenth, but of less extent. The ascending root of the ninth and tenth (respiratory bundle) is normal.

Tenth (vagus): In the upper part of this nucleus the cells appear fairly good, but lower down many are greatly pigmented; others have lost their process, are atrophied, and shriveled up almost to simple spots of undifferentiated substance. In this part there seems to be almost a complete softening or atrophy, with cell *débris*. Here, too, one sees congestion and distended vessels just as in the cord.

Eleventh (spinal accessory): The nerve cells show great pigmentation and atrophy almost as severe as that of the vagus nucleus. The ascending root is not much affected.

Twelfth (hypoglossal): The nerve cells are apparently normal.

In the *spinal cord* there was a thickening of the pia mater and some proliferation of connective tissue beneath it, as described by Dubief. There was a diffuse infiltration of connective tissue in the lateral columns, involving the lateral fundamental columns (Figs. 5, 6), but not the cerebellar tracts. This was especially marked in the cervical, next in the lumbar, and least in the dorsal regions. The posterior columns were somewhat congested but not sclerosed. It was a primary connective-tissue proliferation, for the columns contained an abnormal number of arteries with thick walls and connective tissue about them. Starting from these points, it ran in among the nerve

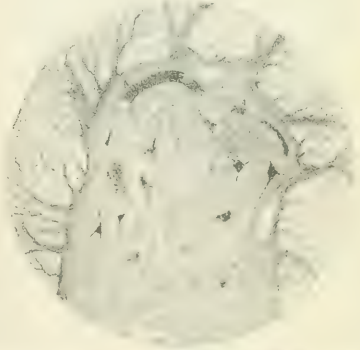


Fig. 7. Paralysis agnans. Anterior horn of the spinal cord, showing dilated vessels and dorsal region.

fibers, not many of which were degenerated. The central canal was distended and filled with epithelial *débris* and exudate at most levels, but not in all. The vessels of the central and



seen patients whose minds were perfectly clear even during the last weeks of the disease.

4. The so-called hemiplegic or unilateral course of paralysis agitans, the fact of the temporary control over the tremor by the will and its cessation during sleep, would lead one, perhaps, to place the seat of the disease in the brain. Now, since it can hardly be in the cortex, it has been suggested that the primary focus of the disorder was in the great ganglia at the base and the internal capsule. Several cases have been reported in which unilateral symptoms of paralysis agitans have been caused by tumors of the optic thalamus and corpus striatum (Leyden, Virchow). In studying the pathology of these regions, however, we find that gross diseases here never cause symptoms exactly like those of the disorder under consideration. The mobile spasms may simulate somewhat that of paralysis agitans; but the vaso-motor symptoms, the sweating, the neuralgic pains, the restlessness, and insomnia are not present. The severe symptoms such as mark the last stage of the disease would surely not occur unless there was some anatomical change in the parts in question; yet in my own sections the basal ganglia seemed to be exceptionally free from any evidence of nervous and vascular disease.

The argument that the disease must be cerebral because of its hemiplegic onset has perhaps the most force of any. I find, however, that, on careful questioning, the history of a hemiplegic course is rare. It nearly as often goes from the right to the left arm, or, as in one case of mine, from the right arm to the left leg. I can only explain the genuine hemiplegic progress by supposing that the spinal-cell groups are more easily affected on the one side than on the other.

Finally, Demange (*Rev. méd. de l'Est*, October 15, 1879) cites a case in which the tremor of shaking palsy continued after an attack of hemiplegia.\*

I am led, therefore, to place the *anatomical seat of the disease in the spinal cord, medulla, and pons*; in other words, in the lowest segment of the central gray matter. There are, I believe, sufficient changes in this area to justify the belief that the pathogenic factor at work here might cause the symptoms. I would go further now and say that it is not all parts of the cord that are chiefly affected; the disease seems to be most marked in the blood-vessels which supply the central parts of the cord and the anterior horns, and next in the lateral columns, including both the pyramidal tracts and the lateral fundamental columns and lateral limiting layers. Finally, there seems to be some evidence of disorder in the posterior columns, though of less degree. The more or less extensive degeneration of the peripheral nerves and muscles can easily be explained as an adjunct or secondary phenomenon.

#### NATURE OF ANATOMICAL CHANGE.

What now are these anatomical changes? The records of the post mortems which I have read to you indicate a very decided uniformity of result in the observations of

these parts. We can no longer say that paralysis agitans is a purely functional disease without any anatomical basis. This anatomical basis I believe to be essentially as follows: First, a congestion of the central and anterior parts of the gray matter of the cord with some thickening of the blood-vessels, but not very much, and some changes of the external wall of the nature of periarteritis. With this congestion and vascular irritation there occurs a proliferation of connective tissue, which especially invades the lateral columns of the spinal cord. It in severe cases affects also the periphery, producing a leptomeningitis and a zone of sclerosis surrounding the cord in a variable degree. The congestion with dilatation of blood-vessels affects especially also the anterior roots, to a less extent the posterior roots. There is degeneration of the cells of the anterior horns, which, however, occurs only late in the disease and does not affect all the cell groups. The central cells or the cells of the median and central areas, which we suppose to be more connected with vaso-motor and glandular functions, seem to be especially involved. There is also—and this is an important fact to bear in mind—a decided loss of the fiber network in the anterior horns and the central gray matter. The changes appear to involve especially the cervical and lumbar regions. Similar changes occur in the medulla and pons, but here they are less marked. Degenerative changes, however, are to be found, in many cases at least, in the cells of the nuclei of the glossopharyngeal and pneumogastric nerves. Such changes would explain the disturbances in the vaso-motor function and heart action found in the disease.

#### PATHOLOGY.

So much now for the anatomical basis of paralysis agitans; can we say yet what is the nature of this change? This of course is the most important question of all, for we have not by any means reached the solution of the nature of a disease by simply finding certain anatomical changes underlying it. In investigating the subject of the pathology we must necessarily approach somewhat the region of hypothesis, and I must beg your indulgence if I at this point leave for a time the firm ground of fact for the less satisfactory field of speculation. A study of the changes which have been described by authors and which I have seen myself leads me very strongly to the conviction that the process here is one that is primarily of an irritative and subsequently of an inflammatory character, and that we may speak of paralysis agitans as being a peculiar chronic and progressive inflammation of the spinal cord—an inflammation which may be more specifically characterized as a diffuse interstitial myelitis. Even this statement of the matter, however, does not include all that we want to know. There can be no irritation or inflammation without some cause, and it is perfectly understood by the pathologists of the present day that a chronic inflammatory process must be due to some irritating or toxic substance.

My own theory and belief are that paralysis agitans is due to a toxine—microbic or humoral; that this toxine circulating in the blood has an especial affinity for certain areas of the spinal cord and medulla oblongata and to a less extent

\* On the other hand, Parkinson, Westphal, and Grashey have reported cases in which the tremor was stopped temporarily by an attack of hemiplegia.



of the peripheral nerves. This toxine, while at first simply of an irritating kind, such as leads to tremors, pains, and vaso-motor disturbances, eventually destroys some of the parts which it at first irritates, and thus we find in the later stages of the disease a destruction of some nerve cells, degeneration of others, and a destruction and atrophy of nerve fibers and nerve-cell processes. The source of this hypothetical toxine we as yet know absolutely nothing about. There are many things in the course of the disease which lead one to think that it is allied to the substances which produce gouty, rheumatic, rheumatoid, and arthritic troubles; in other words, that it is of endogenous origin and due perhaps to some defect in the activity of certain glands. Following a reasonably careful process of induction, we might be led to think that *paralysis agitans* was not primarily a nervous but a glandular disease in which, owing to the defect in the action of the liver, spleen, or adenoid or some other metabolic tissue, there was thrown into the blood a poisonous substance, producing the symptoms of the disease which we are studying.

The action of opium in suppressing to so great an extent many of the symptoms of the disease might be explained by the fact that opium has the power of checking glandular action and modifying so markedly tissue change. There are some reasons which lead me to venture into a still more minute and detailed theory of this disorder. We all know that a prominent and striking symptom of shaking palsy is the fact that there is a hitch or stoppage in volitional impulse, just as though there were some point between the cortex and the muscle where the nerve impulse is stopped. Now, since we know that the muscle and nerve and anterior-horn cell are healthy in the earlier part of the disease, since we know that the motor cells in the cerebral cortex and that the voluntary motor tract are not at all diseased at first, there seems to be but one place in which this hitch or stoppage can occur, and that is at the point where the terminal-end brushes of the voluntary motor tract surround and touch the anterior motor cells; in other words, the *primary lesion in paralysis agitans is perhaps a degeneration of the end brushes of the motor tract which lie about the anterior-horn cells.*

This theory, which is led to by a process of logical induction, is justified also by the fact which I have observed in many carefully stained specimens—that the fibrillary network in the anterior horns is very much atrophied and very much less distinct than in normal specimens. I have sections here in which this disappearance of the network of nerve fibers, which is always shown so beautifully in Weigert stains, is hardly present at all.

But the anterior-horn cells are surrounded not only with end brushes from the motor or pyramidal tract, but also with end brushes that come in through the posterior roots, forming in this way the anatomical substratum for reflex action. If my theory were true, these end brushes should be somewhat affected also, and consequently reflex acts be somewhat delayed or disordered just as voluntary acts are. In several cases in which I have made a test I have found that the skin reflexes in cases of paralysis agitans are absent or are imperfectly brought out, or else they led

to reflex tonic contraction. Tickling the sole of the tremulous foot will, instead of producing a twitch of the leg, simply produce a cessation of the tremor, with or without a slight tonic contraction of the flexors. The cremasteric reflex is very prolonged, the trunk reflexes are lost.

To summarize now what I have gone over, I would say that paralysis agitans is characterized by a central vascularization of the spinal cord, a diffuse interstitial sclerosis starting from the blood-vessels and pia. This affects in particular the central and anterior portions of the gray matter and the lateral columns, leading in later stages to cell degeneration, leptomeningitis, and some peripheral sclerosis; that there is sometimes degenerative neuritis of the peripheral nerves and chronic myositis; that the cerebral cortex and the basal ganglia and the cerebellum, and, in fact, the brain as a whole, is but slightly and only secondarily involved; that this chronic irritative process is due to a toxine which circulates in the blood and may be of an endogenous and perhaps glandular origin; that the disease process first affects the end brushes surrounding the anterior horns and causes their degeneration; and that it finally impairs the anatomical structure of the motor and vaso-motor secretory cells, causing degeneration and atrophy of them to some extent.

#### THERAPEUTICAL.

After so much that is purely scientific, and perhaps purely hypothetical, I ought perhaps to say a word that may be interpreted as having a practical bearing upon the therapeutics of the disease. Paralysis agitans seems to me to be a disease whose progress at least we ought to stop, and which, in its early stages, we ought to cure. It is indeed with a feeling of humiliation that I watch the steadily downward progress of this painful malady in so many cases. There is no serious anatomical change at the basis of this trouble, such as we find in chronic myelitis, or in tumors, or even in locomotor ataxia. There is nothing which makes it intrinsically improbable or impossible that we should cure this dire and painful malady. When we reflect upon the enormous achievements of the human intellect in other fields in erecting extraordinary specimens of engineering skill, in unfolding the wonderful powers of electricity, in organizing industry, and subduing every force of Nature to our use and making them tend toward the increase of our comfort, the enlargement of our knowledge, and the greatness of our civilization, it does seem pitiable that so small a problem as that of stopping the course of this apparently insignificant disease should be still unsolved. Is it because great and ingenious minds are not found in medicine, but are lured away by the fascinations of statecraft or the prizes of commerce? The line of inquiry of research should be, I think, pursued most diligently, most indefatigably, in this direction. If I am at all right in my theories of the disease, we must find some kind of antitoxine which will counteract the poison which circulates in the nervous centers, or we must, through some agent, stop this disordered action by which this poison is thrown into the system. Whether this can be done through any animal extracts, as has been done successfully

with a still more serious malady as myxedema, I do not know. In one typical case I had injections of brain juice made daily for a period of three weeks, but without any results whatever. While experimenting in this direction we must, of course, follow out as much as we can the symptomatic indications. These would lead us, for one thing, to order, as we all do, rest in the treatment of this disease. This is always indicated in irritative and inflammatory processes, and its usefulness in shaking palsy is acknowledged. After rest, I think it will be admitted that opium helps us most. Whether this is by dulling the sensory centers or by interfering with metabolic action or glandular activity, I can not say. I have found that the use of salicylate of sodium and of salol often secures excellent results, and this, too, I could only explain on the theory of some toxic substance or some diathetic poison being at the root of the symptoms.

Among the ancient remedies which were recommended in the disease is iron, and the fact which my examinations show, that in the later stages a chlorosis develops, would lead us to employ this in conjunction with arsenic. The older recommendations regarding severe counterirritation to the spinal cord might perhaps be wisely utilized in connection with our present knowledge of its pathology. I have myself seen good results follow from the application of counterirritation to the spinal cord. Of other remedies—such as hyosine, eserine, strychnine, lukewarm baths—it is not necessary for me to speak. We are all familiar with their results and their disappointments.

## MULTIPLE EPITHELIOMA.

By GEORGE A. PHILLIPS, M. D.,

LOWELL, OHIO.

A. J. S., aged thirty-four, an unmarried woman, first noticed in August, 1891, a small subcutaneous tumor in the right breast, and in about two months afterward there were a dozen more here and there over the trunk. Like the hundreds that followed, they were at first freely movable in the subcutaneous areolar tissue, but soon became attached. Some of them were painful and their sites marked by duskiness or lividity of skin as well as by elevation above its level.

Preferring medicine to surgery, she began painting them with tincture of iodine and taking Fowler's solution of arsenic for its peripheral action without any good effect. Neither were they destroyed nor was their growth arrested or retarded by injections into them of tincture of iodine, alcohol, or a strong solution of carbolic acid. There were no glandular enlargements.

In May, 1892, sixty-four of the growths had appeared, and they were pretty evenly and symmetrically distributed over the scalp, face, neck, trunk, arms, and thighs, but only three, which were of very earthy consistence and about as large as small bird shot, ever came on the forearms and legs. There was no history of tumors in other members of the family.

The patient had been choreic when eleven years old, and had suffered from articular rheumatism affecting the knees and ankles since she was seven, with, however, considerable abatement of pain and swelling during the last three or four years, yet she had taken a college course and had ever been active and ambitious.



FIG. 1.



FIG. 2.



FIG. 3

Early in May, 1892, Dr. B. F. Hart, of Marietta, Ohio, removed seven of the largest tumors, and ten days later he excised fifteen more. Most of them soon recurred with renewed vigor.



FIG. 4

The patient, being anxious, insisted that I should begin removing others under cocaine anesthesia instead of chloroform, as there was mitral regurgitation, for she preferred the risks of

the former drug. From June to August one hundred and thirteen were so treated, with little loss of blood. The wounds were filled with prepared chalk and washed out with water.

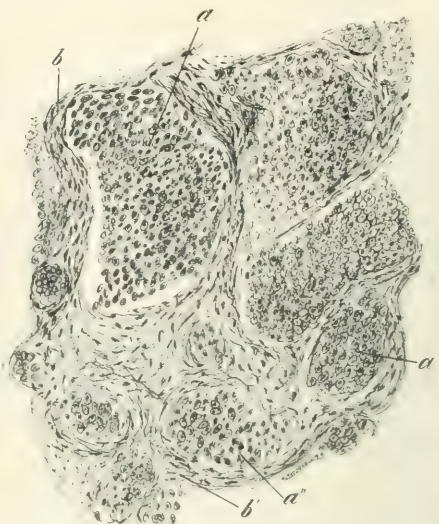


FIG. 5.—A portion of a section through a small tumor. Zeiss ocular 4, objective A A.,  $\times 90$ . *a, a*, nests of epithelial cells; *b, b*, stroma of connective tissue.

Many of them healed rapidly without recurrence of growths, especially the smaller ones. The largest removed by Dr. Hart, which was on the right breast and was the first one to appear in the case, weighed ten ounces. (See photograph for scar.)

August 20th.—Six hundred distinct growths were enumerated. Many flattened clusters and very small isolated ones were not, and in fact could not have been, counted. Owing to the anasarca, comparatively few are shown in the photographs.

For two months prior to the patient's death, which occurred on October 17, 1892, there were paraplegia, general oedema, perhaps largely due to infiltration of deleterious matters, and intense aching pains, necessitating frequent changes of position and the use of anodynes.

Dr. J. C. Graham, lecturer on bacteriology at Starling Medical College, Columbus, Ohio, sends me the following report: "The specimens of skin tumors sent me for histological examination were thirty or forty in number, and from these eight or ten, in size varying from that of a pea to that of a hazelnut, were selected. They were hardened in absolute alcohol, imbedded, and cut in celloidine. In none of the sections examined were any normal tissues found. There was not a trace of the corium or papillary layer of the skin, nor were there any glandular structures or hair follicles. There was a great simi-

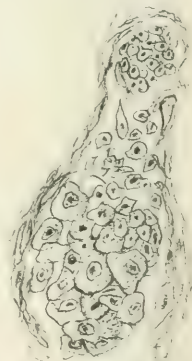


FIG. 6.—Two cell "nests" showing true epithelial character of the cells. Zeiss ocular 2, objective D.,  $\times 40$ .



larity of structure in all the specimens examined, generally a light stroma of connective tissue separating and supporting nests of epithelial cells (see Fig. 4). Many of the nests were quite large, as *a*, but in parts of the sections were composed of only a few cells, giving the preparation a homogeneous appearance. The epithelial cells varied somewhat in size, but usually were of the large pavement kind, with big nuclei and nucleoli.

"In the absence of normal tissue it is impossible to say where the starting point of the growths was"

It seems remarkable, considering the epithelial nature of the growths, that they should be of so great a number. Multiple sarcoma is not a rare disease, but if we except xeroderma pigmentosum and molluscum contagiosum there remains no form of disease in which to class the one under consideration. The peculiar bodies described by various writers as present in the nodules of molluscum contagiosum are wanting in this instance. The history of the case would exclude xeroderma pigmentosum, so it leaves the case a unique one of multiple epithelioma.

Several sections were stained by a number of processes for bacteria, but none were found.

## ORGANIC JUICES IN THERAPEUTICS.

By J. S. LEONHARDT, M. D.,  
LINCOLN, NEB.

UNLESS all signs fail, we are on the threshold of a novel era in therapeutics. The evolution of medicine might be described as occurring along the lines of an ascending spiral. A given point on a certain segment may represent the limit of advance in one epoch and yet rest very near in a straight line to a corresponding period of medical achievement in the arc of a preceding circle of progress. It is thus possible to conceive of a long stretch of time—when measured along the circumference of the spiral—crowded with research and experiment, maturing conclusions and enunciating doctrines not very far removed from similar ones attained many years before. This schematic description may aid us in understanding the scientific value of some phases of modern medicine and their relationship to beliefs and practices long since considered worthless and obsolete.

Paulus Ægineta, in the seventh century of the present era, taught that the liver of a mad dog was a cure for hydrophobia. Hahnemann, in the early part of the present century, experimenting along the same isopathic curve, refined the crude therapeutics of the Greek and used "hydrophobin" in the treatment of rabies. Closely related to the same idea are the explorations and discoveries of Jenner, Hermann, Pasteur, Koch, Freire, Brown-Séquard, Murray, Hammond, and others. While each individual in these several expeditions labored without prejudice and doubtless independently of the methods of any predecessor, it can not be denied that every succeeding effort gained in both strength and effectiveness from either the success or failure of those who went before him. I do not believe that the motive which prompts this kind of inquiry is conceived in a mercenary spirit, as some journalists would have us believe. No one can for a moment doubt the sincerity of

those who have toiled in these unfrequented regions; their contributions to science in general and medicine in particular are of too honorable and earnest a character to admit of such an unworthy suspicion. And yet neither the plausibility of a theory nor the unselfishness with which it is promulgated should operate to suppress its impartial discussion or to disarm fair criticism. The privilege of analyzing any theory should be forever reserved by the republic of medicine regardless of the learning or dignity of its defender.

All of us remember how Pasteur startled the medical world in 1885, and every progressive physician felt a deep and personal interest in the work of Koch, Carmona, and Ferrán. When Brown-Séquard, however, announced before the *Collège de France* in July, 1889, the wonderful potency of testicle juice as a rejuvenator ("Europeanizing," as it were, a belief that had been current and official in China for a thousand years), the results alleged were so magnificent and so wholly out of all adequate proportion to the cause that it staggered the credulity of the profession, and its master minds refused to accept it without additional proof and testimony. The alleged vito-dynamic power of this extract was too excessive to be taken for granted, although Pasteur asserted in dead earnest that prior to taking an injection of it himself on May 15, 1889, the strength of his forearm was sufficient only to move thirty-seven kilogrammes, and that after a single hypodermic it increased to forty-four kilogrammes, and that he found himself nearly as strong and active as when in London some twenty-six years before. Bogroff, of Odessa; Zenetz, of Warsaw; Bock, of Berlin, and other able men subsequently confirmed all of the extraordinary statements of the original investigator, and to-day it is not uncommon to read in the literature of the subject that testicle juice has been tried and found of great value in the most diverse forms of disease, ranging from hysteria to locomotor ataxia, from barber's itch to cancer. Lately Professor Luton, of the Reims School of Medicine, has been guilty of the odious practice of substitution; he has administered hypodermically an aqueous solution of sodium phosphate and sulphate for the amelioration and cure of the same diseases and conditions for which testicle juice is so ardently recommended, and found it to be as efficacious as its organic predecessor. While he has not as yet formulated its power in the mathematical language of Brown-Séquard, he is nevertheless able to state in words that amount to practically the same thing that "monthly injections . . . may maintain a feeble invalid in a state of nervous energy sufficient to enable him to earn a living." We can not afford to smile at such a consummation, and I would suggest that Stearn, Merck, Richardson, and other anti-substitutionists permit the professor to continue in the practice of this unpardonable sin—in the apothecary—remembering that Liebreich has committed the same crime against the syllabus of Koch. After all, these men have been guilty of no greater offense than using a few of the inorganic proximate principles of universal distribution in the human organism instead of those of organic extraction. Recently we have been introduced to the marvelous effects of desiccated thyroid glands in myxœdema by Murray, of Newcastle. Since then H. Mackenzie, also of England, has

achieved the distinction of curing diabetes with pancreatic juice. It is too early as yet to form any opinion of either their career or their fate.

Quite lately William A. Hammond has revived the Pauline heresy, and through the medical press has narrated many remarkable results obtained in the treatment of diseased organs by the administration of an extract obtained from the corresponding healthy organs of inferior animals. His special field of investigation, so far as has been made public, embraces the treatment of diseases of the nervous system and heart by the hypodermic exhibition of cerebrin and cardine. Of cerebrin he is able to say that a decided increase in muscular strength and endurance immediately follows its administration. He is also able to state in mathematical terms the following: "... I could 'put up' a dumb-bell weighing forty five pounds fifteen times with the right arm and thirteen times with the left arm, while after a single dose of the extract I could lift the weight forty-five times with the right arm and thirty-seven times with the left arm." It is exceedingly difficult to classify this form and quality of empiricism, especially when we find subscribed to it the honored name of our Washington brother. While I have read with much interest, and I trust candor, all articles and communications on the subject that have come to my notice, and more particularly all that has emanated from the facile pen of Dr. Hammond, I can not accept his theory of the *modus operandi* of the extracts—i. e., that to supply in a preassimilated form the "peculiar pabulum which each organ of the body demands for its development and sustenance" will enable the diseased cellules of an organ to regain their phagocytic prehension, and thus re-establish the physiological equipoise of the organ involved. I believe in the value of reconstitutives in the treatment of disease, but I also believe that pathology is a much more complex problem than that represented by the relations expressed in the simple law of supply and demand. If this were not true, then all treatment might be resolved into a mere system of alimentation with regard to reconstructive metamorphosis only. It is the inability to appropriate the proper pabulum, rather than the want of the preassimilated food itself, that makes dietaries and reconstitutives so constantly disappointing. To supply nutriment to an organ that is starving for the want of it is quite different from the supplying of food to an organ or body psychically or physically unable to receive it. A paralytic dement will starve to death in the midst of plenty, so likewise a cell that has lost its normal biological properties. If the hypothesis were worthy of the name, what a simple and, withal, comprehensive system of therapeutics might be constructed from the parody contributed to the April 29th issue of the *New York Medical Journal* by Dr. Wallace Wood! Suppose some one should suggest that since the human body contains certain proximate principles—sixteen of the first class, inorganic; four of the second class, organic but non-nitrogenous; eighteen of the third class, containing nitrogen—and certain organs and tissues in a state of health contain certain of these principles in greater abundance than others, why not supply those wanted when some organ

or tissue in which they predominate suffers a pathological invasion? According to this theory, why should not pneumatic acid be a specific in all pulmonary ailments from bronchitis to tuberculosis? It would not be very difficult to defend such a vagary with considerable show of reason. It could be put into practice quite easily too, since most of the principles are now laboratory products. Such a system is susceptible also of considerable refinement. Analyses of these organic and inorganic proximate principles show that they are all composed of ordinary elemental substances in more or less definite chemical combination. Why not administer them, then, singly or combined, as the case may require? I fancy it would require the ability of a Cambridge wrangler to explain the effectiveness of the saline solution used by Professor Luton in lieu of testicle juice, or that of Liebreich's instead of Koch's tuberculin, or that of Professor von Mosetig-Moorhof's *teurine*, upon any other hypothesis. Who will say that this is either unreasonable or impossible, when we know that in the profound recesses of Nature's great alchemic workshop chemico-vital transubstantiation is constantly taking place?

In the April 22d issue of the above-mentioned publication occurs an article on cardine by Dr. Hammond. It is illustrated with sphygmographic tracings which, it is maintained, show pronounced indications of the favorable effects of this extract on the heart. I suppose it is necessary to accept as true the implied allegation that these cuts are *fac-simile* representations of actual tracings taken with a real sphygmograph. I can find nothing like them, however, among several thousand sphygmograms, both clinical and experimental, taken with a Dudgeon instrument, and preserved by me during the past five years. Neither have I ever seen anything like them in sphygmograms illustrated by writers on cardiac diseases, or the graphic methods of physiological or clinical research. Fig. 1 in the article in question is said to be from a man in good health. Broad-bent, with all his lack of confidence in the sphygmograph, would not come to such a conclusion. Personally, if auscultation revealed nothing abnormal in the circulation, I should rather distrust the evidence of my acoustic apparatus than doubt the physical testimony of the machine. The tracing indicates an obstruction in the circulation either at the cardiac orifice or in the course of the arterial distribution. There is nothing normal about it except the speed. Fig. 2 illustrates a tracing taken ten minutes after an injection of five minims of cardine; the writer does not comment on it very liberally. I read it as indicating a pulse rate of about 100 a minute, irregular in both rhythm and volume, weak, of high tension, and without a single well-defined normal feature. In Fig. 3, while the systolic weakness is not so marked as in the preceding, the irregularity is greatly increased, an impossible percussion upstroke is shown, and, as a whole, it does not admit of analysis; it looks more like the *pulsus paradoxus* of Kussmaul than anything else. It certainly can not be taken as indicating anything favorable in the circulation. None of these cuts are worthy of the least confidence, they are so unlike the careful work that should and usually does characterize the products of an impartial physiological experiment. I dislike to speak

disparagingly of these illustrated demonstrations, but the new or revived theory is too opaque and peculiar in itself to admit of the least additional ambiguity, especially when it is the result of an unintelligible experiment.

## THE TUNING FORK AS A REMEDY IN EAR DISEASES.

By JOSEPH SIMROCK, M.D.

The vibrations of a tuning fork, by interposing a slender staff as conductor, can easily be transferred on a stretched elastic membrane. The membrane can thus be made to produce a sound corresponding in pitch to the rate of vibrations of the tuning fork.

The membrana tympani, being a stretched, elastic membrane, if connected by a conductor with a vibrating tuning fork, is influenced in the same way, and this physical process can be made useful in a therapeutic sense.

A fine, elastic probe, the end of which has been covered with some cotton to prevent its point from protruding, is pressed slightly against the drumhead. By bringing this probe now in contact with the vibrating prong of a tuning fork, the membrana tympani commences to vibrate, producing a sound audible at some distance, and varying in pitch by using tuning forks of different rapidity of vibration. This sound is of various loudness, sometimes even in both ears of the same individual, with no visible changes in the drumhead to explain this difference, which may depend on pathological changes—as folds or bands in the drum cavity, thickening of the mucous membrane, or changes in the quantity of air contained behind the drum membrane.

These strong vibrations of the membrane, caused by the vibrating tuning fork and conveyed on the chain of ossicles and through these on the membrane of the fenestra ovalis, can exercise a curative influence on these parts in diseases impairing their natural mobility—as in progressive sclerosis, in chronic catarrh, in the later stages of acute and subacute catarrh, also after suppurative diseases.

After trying the different kinds of tuning forks on their utility, I make now chiefly use of two—one with round, cylindrical prongs, the latter eleven inches in length and about one fifth of an inch in diameter; the other also with cylindrical prongs, seven inches long and one fourth of an inch thick. The sound produced by the larger one corresponds in pitch to the low C of the bass, that produced by the smaller to the low E flat of the tenor voice. By using more or less pressure in applying the probe to the drumhead, or by exciting the tuning fork into vibrations of more or less amplitude, the strength of the appliance can be modified.

Even in far-advanced cases of deafness caused by the above-cited ear diseases, a decided and permanent improvement could thus occasionally be made. Better results were observed in cases where ordinary conversation could be still understood in not less than four feet distance.

Cases of osseous ankylosis of the stapes, or ossification of the membrane of the fenestra ovalis, will be benefited as little by this as by any other known procedure.

Tinnitus sometimes after a few treatments ceases entirely; in other cases it stops for a short time, to return in the same or a milder form; still other cases remain uninfluenced.

In making use of this procedure I would recommend beginning with weak vibrations and treatments of short duration, and gradually increasing both.

## MIGRATION OF A FOREIGN BODY.

By WILLIAM S. GOTTHEIL, M.D.

A. G., aged forty-two, German, applies on May 8, 1893, for relief from a foreign body that is located under the skin at the lower end of the sternum. His history is as follows:

Just one year ago he was stabbed by a jealous woman with a hat pin. It was a long, stout needle with a round, black head, such as is in common use among females for the purpose of attaching the hat to the hair. As he was running away from the woman at the moment when she struck him, the needle entered at a point on the back of his right shoulder. He shows a place located over the middle third of the posterior surface of the deltoid muscle as the spot. The needle broke at the moment of the stabbing, and only the head with the upper part could subsequently be found. He thought nothing further of the matter, and the slight wound gave him no inconvenience whatever.

During last winter he suffered a good deal from pains in the right shoulder, for which he consulted two or three different doctors at various times. They all agreed that he had rheumatism, and treated him for it. Their medicines did him no good. Sometimes he would be entirely free from pain and could forget his malady; at others he could not raise his right arm to use a hammer or a billiard cue without severe pain. In January the rheumatism ceased, and he has had no return of it since.

One month ago he noticed a long, hard body under the skin at the region of the ensiform cartilage. It caused no pain, and finally worked its way forward until it reached its present position. He could not imagine what it was, until one day he chanced to think of the stab that he had received a year ago, and the lost fragment of the hat pin. He then made up his mind that the body just in front of the end of his breast bone was the missing fragment which had gradually traveled to that position, and that his rheumatism of last winter had been caused by its migrations.

Examination showed a hard, elongated body some three inches in length, lying opposite the middle of the ensiform appendix in a transverse position, and extending most to the left of the median line. Its free and apparently thicker end was situated half an inch to the right of the right border of the appendix. Its other end was to be felt for an inch or so beyond the left border of the cartilage and then seemed to be lost among the deeper tissues, as if it had been deflected inward, and was making its way toward the stomach.

Pressure on the deeper portion raised the right extremity of the body forward, the appendix acting as a fulcrum. The projecting portion was cut down on and the body removed with a stout pair of bone forceps. The deeper extremity was quite adherent and had evidently penetrated the cartilage or its perichondrium.

It turned out to be, as the patient alleged, the missing portion of the hat pin. It was two inches and five eighths in length and slightly bent in the middle. It had lost its polish, but otherwise was in exactly the same condition as it was when it entered



the body a year ago; even the fractured end was not rusty. Examination of the skin of his shoulder failed to reveal any scar at the site of the stab.

This foreign body, then, passed through the deltoid, the teres, and the latissimus dorsi, then traversed the lower portion of the axillary cavity, and then passed along the intercostal muscles until it struck the lower segment of the sternum or the ensiform cartilage. This deflected it toward the skin. It then crossed the cartilage and was on its way toward either the intercostal space again or the deeper structures, when it was removed. I see no reason to doubt the patient's statement as to the point of entrance. True, no scar was found, but it is not likely that one would result from so slight a punctured wound. Our paracentesis needles and small trocars frequently leave no trace of their insertion. That none of the axillary structures were injured was probably due to the fact that the needle passed downward through the muscles that bound that space posteriorly, and then crossed it at its lower and less important angle.

A point to be noted is the entire absence of any reaction on the part of the tissue to the presence of this foreign body. A hat pin, of all things, would most likely be in an unclean and dangerous condition, being constantly in contact with the hair, scalp, hands, etc. Yet it gave no trouble, save mechanically, during its wanderings, and it might have continued them indefinitely if it had not accidentally got near enough to the external surface to be felt. It was probably well cleaned by passing through thick clothing before it reached the skin.

25 WEST FIFTY-THIRD STREET.

**The Pan-American Medical Congress.**—The Section in General Surgery has been organized as follows: Honorary Presidents: Dr. E. Andrews, Chicago; Dr. Manuel Barros Borgoño, Santiago, Chile; Dr. W. T. Briggs, Nashville, Tenn.; Dr. J. D. Bryant, New York; Dr. P. S. Conner, Cincinnati; Dr. N. P. Dandridge, Cincinnati; Dr. E. H. Gregory, St. Louis; Dr. W. T. Halstead, Baltimore; Dr. W. W. Keen, Philadelphia; Dr. Levi Cooper Lane, San Francisco; Dr. Rafael Lavista, City of Mexico, Mexico; Dr. Samuel Logan, New Orleans; Dr. Claudius H. Mastin, Mobile; Dr. E. M. Moore, Rochester; Dr. Julius Mundt, Comayagua, Honduras; Dr. W. H. Pancoast, Philadelphia; Dr. John B. Roberts, Philadelphia; Dr. Louis A. Sayre, New York; Dr. Casimiro Saez, Havana, Cuba; Dr. N. Senn, Chicago; Dr. Belasario Sosa, Lima, Peru; Dr. J. Ford Thompson, Washington; Dr. J. Collins Warren, Boston; Dr. John A. Wyeth, New York; Dr. D. W. Yandell, Louisville; Dr. Rudolph Mates, New Orleans. Executive President: Dr. John B. Hamilton, 20 Custom House, Chicago. Secretaries: Dr. Joseph Ransohoff (English-speaking), 296 Walnut Street, Cincinnati; Dr. W. H. Heath (Spanish-speaking), 415 Pearl Street, Buffalo; Dr. Pirovano (Florida 251), Buenos Aires, Argentine Republic; Dr. Ricardo Guzman, La Paz, Bolivia; Dr. A. P. Boon, St. Kitts, Br. West Indies; Dr. T. G. Roddick, Montreal, Canada; Dr. Rafael Rocha Castilla (Carrera 6 No. 285), Bogotá, Rep. of Colombia; Dr. Panfilio J. Valverde, San José, Costa Rica; Dr. Raimundo Menocal (Dragones 2), Havana, Cuba; Dr. Erichsen, St. Thomas, Danish West Indies; Dr. D. E. Guesde, Point à Pitre, Guadeloupe, F. W. I.; Dr. Juan Padilla Matute, Guatemala City, Guatemala; Dr. Leon Audain, Port au Prince, Haiti; Dr. G. P. Andrews, Honolulu, Hawaii; Dr. R. Pineda, Tegucigalpa, Honduras; Dr. Regino Gonzalez (Corderanes No. 4), City of Mexico, Mexico; Dr. Velasquez, Managua, Nicaragua; Dr. Lucas A. de O. Catta Preta, Rio de Janeiro, U. S. of Brazil; Dr. José Pugmalin (Mercedes 280), Montevideo, Uruguay; Dr. David Lobo, Caracas, Venezuela.

**The New York Society of Dermatology and Genito-urinary Surgery** was organized on May 24th, and officers were elected as follows: President, Dr. John A. Fordyce; vice-president, Dr. F. Tilden Brown; secretary, Dr. J. P. McGowan; treasurer, Dr. C. C. Ransom.

## THE NEW YORK MEDICAL JOURNAL,

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### THE DIAGNOSIS AND TREATMENT OF FÆCAL RETENTION.

It is now well known that there are cases of chlorosis in which the absorption of poisonous material from the intestine, as a consequence of fæcal retention, is the foundation of the trouble. Such cases do not yield to the use of iron and other hæmatics or to treatment of any kind until the intestinal fault has been corrected. But its existence is not always readily detected. In the May number of the *Practitioner* Dr. George Herschell, in an article On a Urinary Chromogen in Cases of Chlorosis, gives the histories of certain cases in which he found that the addition of nitric acid to the urine produced a rose-red coloration. Such a reaction, he thinks, shows the presence of a chromogen indicative of septic absorption from the intestine. In one of the cases there was urticaria, and this, as well as acne, the author thinks is often due to fæcal retention. Further symptoms are anæmia, chloasma, flatulent dyspepsia, a furred tongue, foul breath, muddy sclerotics, giddiness, shortness of breath, and palpitation of the heart.

Dr. Herschell describes a form of bimanual examination of the abdomen by which, except in very fat persons, he finds it practicable to ascertain the existence of impaction of the colon when it is not readily discoverable by ordinary manipulation. The patient lying on the back, with the knees well drawn up, the physician places one hand on the abdomen below the tenth or eleventh costal cartilage, while the fingers of the other hand are passed beneath the patient into the posterior hypochondriac region, the interval between the last rib and the crest of the ilium. The colon can then be pressed upward and forward against the hand on the front of the abdomen, which hand it is indispensable to keep firm and immovable. A little practice will give the requisite dexterity in this manipulation, which is the only one, the author says, by which the certain detection of the slighter degrees of retention in the colon is possible, as percussion sounds may be so altered or obscured by various concomitant circumstances as to become valueless.

Fæcal impaction is to be treated by flushing the colon with hot water. As the accumulation oftenest takes place in the ascending colon, it is commonly necessary that the water should reach to the cæcum, but before this can be accomplished, in the adult, nearly a gallon of water has to be used. The heat of the water is of the greatest importance, for it makes all the difference between failure and success. Plain hot water, as hot as it can comfortably be borne, is all that is necessary; it is quite harmless and does not produce cramps or tormina. Cold or tepid water will not do, as it will give great pain. The patient's shoulders must be lower than the hips. The genu-pectoral posture is the best, but, if the patient will not submit to

that, she may lie on her back on a hard mattress, the pelvis being well elevated with pillows. A long rectal tube is not at all necessary. An ordinary nozzle connected by a long rubber tube with a large graduated glass douche-reservoir is all that is required. Only the weight of the column of water is used as the injecting force, and that may be regulated by raising or lowering the vessel. Fresh hot water should be added from time to time to keep up the temperature of the injection and make its flow continuous.

#### THE VEGETABLE MERCURY OF BRAZIL.

In the April number of the *Annales de dermatologie et de syphiligraphie* there is an article by Dr. Cathelineau and Dr. Fournier on this drug, founded on experiments in Professor Fournier's laboratory. It seems that in the equatorial regions of Brazil there grows a tree called by the natives *mururé*. It has not yet received its scientific name or been classified. By incisions into the bark of this tree a juice called vegetable mercury is obtained. In a work entitled *Formulario e guia medico*, published in Paris in 1884, Chernovitz stated that *mururé* juice was used in doses of a drachm, in half an ounce of water, the dose being repeated on every alternate day, according to the effects produced. It is an energetic purgative, and the natives use it especially in rheumatic affections, and above all in syphilis, whence its name. The bark is of a brick-red color. From its outer surface scales of a much deeper red are somewhat readily detached. Its inner surface is fibrous, grayish, and rather hard. The juice is a reddish liquid of rather a vinous odor and a sweetish taste. It is syrupy and of acid reaction. After being neutralized, it was administered to a rabbit, by intravenous injection, to the extent of four cubic centimetres to the kilogramme of the animal's weight, and caused death in thirty minutes. At the necropsy the stomach and intestine presented a vinous-red color. In the left ventricle of the heart there were reddish spots here and there. The kidneys were affected in like manner. In a dog an intravenous injection of four cubic centimetres to the kilogramme gave rise to the same phenomena and produced death in forty-five minutes. Given by the mouth, to the amount of eight cubic centimetres to the kilogramme, it caused death in twenty-four hours, and the lesions found were the same as have been mentioned.

*Mururé* juice is only partially soluble in distilled water, but the residue is soluble in alkalized water. The authors experimented separately with the portion that is soluble in water and with that which dissolves only in alkalized water. When the former was used, at the necropsy the heart and the kidneys were found particularly affected, while the stomach and intestine presented merely a light coloration. When the latter was employed, death took place much more tardily, but the animals had intense diarrhoea, which was not observed in the others; moreover, at the post-mortem examination it was particularly the stomach and intestine that showed an intense red coloration, while there were no visible lesions of the heart and kidneys. The authors do not seem to have employed the drug remedially.

#### KOCH'S TUBERCULIN IN CHRONIC CEPHALALGIA.

DR. CHARLES DENISON, of Denver, has recently had occasion to use tuberculin as a means of diagnosis in a case of suspected tubercular meningitis, marked by headache of several months' duration. His patient was an overworked physician from the East, aged thirty-eight years, who had a pronounced tubercular family history and had been ill with pulmonary and basilar symptoms of a protracted and painful nature. The use of tuberculin was begun with a one milligramme injection. The diagnostic reaction began twenty-two hours later, and continued about twenty hours. The pulse, previously 60, became 82 at the maximum; and the temperature, before 98.5° F, became 100.5°. Emesis was produced, also a constrictive feeling around the forehead and occiput. With the cessation of the tuberculin reaction the patient began to lose the pain in the head that had not been absent for six months. Tuberculin was again given, and this was followed by a reaction like the former one as to pulse and temperature, but more rapid in its coming and going. The patient's improvement from that point was exceptionally rapid. At the time of his admission to the hospital it was necessary for him to have the aid of two assistants to get to bed; four or five days later he was out of the hospital riding in the street cars and walking two blocks to reach Dr. Denison's office. In another week he was able to go riding daily, was out of doors nearly all day, and had no recurrence of headache, with the exception of once, when it seemed to have a gastric origin. After three weeks of continued treatment he took his departure for his home in one of the New England States, carrying with him the means of self-treatment. He was recommended to continue the injections every three or four days, until 40, 50, or more milligrammes at a dose should be taken. And now Dr. Denison says he is wondering if some persistent headaches, not otherwise remediable, may not yield to tuberculin. The report of this case is published in the *Journal of the American Medical Association* for June 3d. There was no sputum to examine for bacilli during the time this patient was under Dr. Denison's care. This is the eighth case in which he has made use of tuberculin as a means of diagnostic confirmation of tuberculosis where there was no sputum or there were no bacilli in examined sputum. This is possibly the first recorded case of a diagnosis of chronic tubercular meningitis made in this manner.

#### MINOR PARAGRAPHS.

##### THE INCREASE OF LEUCOCYTES IN THE BLOOD AFTER COLD BATHS.

DR. W. S. THAYER publishes a paper on this subject in the *Johns Hopkins Hospital Bulletin* for April, based on some observations made by Dr. J. S. Billings, Jr., since last November. The latter gentleman found that after baths of twenty minutes' duration, given at 70° F., blood taken from the lobe of the ear, in twenty cases of typhoid fever, showed that the average number of leucocytes before the bath was 7,724 + and after the bath 13,170 +. A further study was made of the relative proportion of the different varieties of leucocytes to one an-

other, and while there were constantly observed a slight diminution in the multinuclear neutrophiles and a slight increase in the uninnuclear forms, there was no other difference in the proportion of varieties of leucocytes before and after the baths. The author is studying the questions of whether cases in which the bath is followed by an immediate reaction give the same results as those where there are cyanosis and coldness; of whether blood from parts that are cold and blue shows the same conditions as that taken from parts that are red and warm; of whether blood from a superficial cut with a lancet shows the same condition as that from a deep needle prick or possibly from a larger vein; of whether local applications of cold bring about the same result in a part as the general bath does; of whether there is any change in the number of the red corpuscles in the cubic millimetre; and of how soon the increase in the number of leucocytes appears and what its course is. Answers to these questions are necessary in order to determine whether this increase is general throughout the circulating blood or whether it is only local and due to the accumulation of leucocytes in the smaller peripheral vessels. If the latter is the case, Winternitz's recent suggestion that the leucocytosis produced by cold baths exerts a destructive influence on any pathogenic organisms and thus explains the increased "urotoxic coefficient" discovered by Roque and Weill to follow this treatment, is insufficient to explain the vaunted superiority of the cold-bath treatment. The scientific method displayed by the author in the study of this question is an example for other investigators, and we trust that he will pursue the investigation in order that he may determine the answers to the questions he has asked.

#### SCARLET FEVER IN A JAPANESE.

In *Science* for April 21st Dr. A. S. Ashmead is quoted regarding the rare occurrence of this disease among the Orientals. It is even denied by some authorities that the Japanese are ever subject to this malady. However this may be of the Japanese in their own country, it is not true in regard to those who come to this country. Dr. Ashmead, in consultation with Dr. Benjamin Ayer, of Brooklyn, was recently called to see a clear case of scarlet fever in a young Japanese gentleman, aged twenty-three years, a resident in the city above named, offering a febrile and eruptive history appropriate to that disease. This patient, however, had a record of a somewhat tardy and protracted desquamation, as if taking place in an integument not well adapted to a typical development of the efflorescence. The general behavior of the attack has been described by Dr. Ashmead in an article sent to the *Sei-I-Kwai*. He has already made some experiments in the way of inoculations, in the hope of obtaining a protective virus against scarlet fever. His results have been negative hitherto, but he intends to make some further researches in the same direction as he has opportunity. He recently inoculated two children who had been exposed to the contagion of scarlet fever with the blood-serum from a blister on the body of a child who, having previously had scarlet fever, might be considered to be artificially proof against that disease. No scarlet fever occurred in those cases. In this Japanese case there were marked throat symptoms, but there was no albuminuria. There was a return to the normal temperature on the fourteenth day. The highest temperature was 103.5° F.

#### AN ENORMOUS OVARIAN TUMOR IN A YOUNG GIRL.

At a recent meeting of the Philadelphia Academy of Surgery Dr. W. W. Keen presented an account of the case of a girl whom he had first seen when she was fourteen years old,

at which time, although the abdomen was enormously distended, the child's father would allow no other operation than tapping to be performed. About fourteen months later the patient was brought to the Jefferson College Hospital, and Dr. Keen performed ovariectomy. The weight of the solid mass removed was twenty-seven pounds, and that of the liquid eighty-four pounds, making a hundred and eleven pounds in all. The child herself weighed only sixty-eight pounds. The appearance of the abdomen after the removal of the tumor was thus described by Dr. Keen: "It looked almost like that of an eviscerated cadaver in the dissecting-room. The tumor had so pushed the liver to the right and backward, and the stomach to the left, that nearly the whole of the diaphragm was exposed, and flapped up and down with the pulsations of the heart. Down the middle of the cavity the bodies of the vertebrae were entirely exposed, showing the aorta and vena cava to their bifurcations, the intestines being a very minor consideration and pushed to each side in the hollow of the ribs and the lumbar region. When the abdominal wall was sutured the abdomen was excessively scaphoid, the anterior abdominal wall lying directly on the aorta and vertebrae. The puckering of the skin, although moderately marked, was much less than I had expected." Dr. Keen added that he had not had time to search through the literature of ovariectomy, but, so far as his memory served, he had never known a larger tumor removed from a child. It weighed just one and a half times as much as the patient. Her recovery had been most satisfactory in spite of a very poor and capricious appetite.

#### A FEVER ANNUNCIATOR.

The *Lancet's* Paris correspondent tells of an apparatus of recent invention for registering rises of temperature from friction in a machine, from fermentation in a mass of grain, etc. A small metallic bulb half filled with ether is sealed by a corrugated cover. When the temperature rises so as to expand the ether vapor sufficiently the cover is straightened out by the pressure and made to close an electric circuit that works a bell. It is said that the inventor, M. Tavernier, cherishes the project of fitting up hospital wards with these bulbs, each of which, secured in a patient's axilla, shall operate a numbered bell in the interne's room, after the manner of hotel annunciators. By this means, it is expected, a sudden and dangerous rise of temperature in any particular case may at once be brought to the interne's notice.

#### THE NEW YORK PHYSICIANS' MUTUAL AID ASSOCIATION.

We have often taken occasion to commend this organization to the profession, and to record its continued prosperity and increasing beneficence. The association is now established in permanent quarters in the Academy of Medicine's building, No. 17 West Forty-third Street, where a representative will be present on the library floor every Monday and Thursday evening at half past eight o'clock. The membership is now over twelve hundred and is increasing steadily. It is urged that an effort should be made to raise it to two thousand. The privilege of membership is now open to physicians throughout the State. Further information may be had of the secretary, Dr. J. E. H. Nichols, No. 4 East Forty-third Street.

#### SCABIES AND ACUTE NEPHRITIS.

In the *Nouveau Montpallier médical* for May 6th Dr. P. Bothezat, after mentioning the comparative frequency of nephritis as the result of extensive inflammations of the skin, such



as burns and certain cutaneous diseases—lupus, eczema, lepra, impetigo, etc.—states that he has found no record of its occurrence in consequence of scabies. He has, however, recently observed acute nephritis with grave uræmic symptoms in a person affected with pustular scabies. The rarity of renal inflammation as a result of the itch, he remarks, may be real, and due to the fact that such limited cutaneous lesions are hardly capable of producing it, or it may be only apparent, the kidney being so slightly affected that the trouble goes undiagnosed.

#### THE LYMPHOGENOUS DIATHESIS.

SUCH a diathesis Jaccoud (*Semaine médicale*, 1892, No. 40; *Centralblatt für klinische Medizin*, May 6, 1893) thinks is at the bottom of both leucæmia and pseudoleucæmia, which two conditions he looks upon as differing only in the degree of leucocytosis. Pseudoleucæmia, he says, usually proves fatal before there has been time for its transition into leucæmia, most commonly from intrathoracic tumor.

#### UNNA'S ICHTHYOL VARNISH.

ACCORDING to the *Union médicale*, this antiseptic varnish consists of fifty parts of ichthylol, forty five parts each of carbolic acid and water, and a hundred parts of starch.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 6, 1893:

DISEASES.	Week ending May 21.		Week ending June 6.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus . . . . .	15	13	13	2
Typhoid fever . . . . .	8	4	13	7
Scarlet fever . . . . .	152	19	150	17
Cerebro-spinal meningitis . . . . .	19	5	23	16
Measles . . . . .	180	7	146	17
Diphtheria . . . . .	122	34	119	10
Small-pox . . . . .	11	2	12	1

The Association of Military Surgeons of the National Guard of the United States will hold its third annual meeting in Chicago on Tuesday, Wednesday, and Thursday, August 8th, 9th, and 10th, under the presidency of Colonel Nicholas Senn, of Chicago, surgeon general of the National Guard of Illinois, Colonel Charles R. Greenleaf, deputy surgeon general of the army, being the honorary president. The president will deliver an address on Enterorrhaphy. In addition, the preliminary announcement gives the following titles:

The Management of the Wounded on the Battlefield of the Future, by Colonel Charles R. Greenleaf, deputy surgeon general of the United States army, Washington; When to Probe and when not to Probe, by General J. D. Bryant, surgeon general of the National Guard of the State of New York, New York; The Value and Importance of a Practical Knowledge of Bacteria in the Prevention and Treatment of Infection, by Captain Louis La Garde, assistant surgeon, United States army, Chicago; The Bacteriology and Chemistry of Tetanus, by Professor Finkler, staff surgeon of the German army, Bonn, Germany; Wounds made by Large and Small Bullets, by Major A. C. Girard, surgeon, United States army, Fort Sheridan, Illinois; The Comparative Value of Ligation and Torsion as Hemostatic Agents, by Lieutenant Horace M. Brown, assistant surgeon, National Guard of Wisconsin, Milwaukee; Gunshot Wounds of the Head, by Colonel Louis W. Read, surgeon general, National Guard of Pennsylvania, Norris-town; Gunshot Wounds of the Chest, by Captain Charles Adams, assistant surgeon, National Guard of Illinois, Chicago; Gunshot Wounds

of the Abdomen, by General J. D. Griffith, surgeon general, National Guard of Missouri, Kansas City; Gunshot Wounds of Long Bones, by Captain H. E. Leach, assistant surgeon, National Guard of the District of Columbia, Washington; Gunshot Wounds of Joints, by Lieutenant-Colonel H. L. Burrell, medical director, Massachusetts Volunteer Militia, Boston; The Physical Examination of the Recruit and the Progressive Muscular Development of the Soldier, with Practical Demonstrations of the Method, by Captain Charles B. Ewing, assistant surgeon, United States army, Baltimore; The Progress of Medico-military Science in the National Guard of New Jersey, by General J. D. McGill, surgeon general, National Guard of New Jersey, Jersey City; The Objects and Aims of an International Military Congress, by Major Lawrence C. Carr, surgeon, National Guard of Ohio, (Cincinnati); Physical Training for the National Guard, by Major O. H. Marion, surgeon, Massachusetts Volunteer Militia, Boston; Military Medical Problems, by Captain Charles E. Woodruff, assistant surgeon, United States army, Fort Assiniboine, Mont.; The Legal Relations of a Surgeon to the National Guard, by Major J. Adelphi Gottlieb, surgeon, Cadet Corps, National Guard of the State of New York, New York; Camp Hospitals, by General Thomas Kittredge, surgeon general of Massachusetts, Salem; Some Notes on the Northwest Rebellion of 1885, by Professor T. G. Roddick, Montreal, Canada; The Prevention of Cutaneous Parasitic Diseases in Soldiers, by Lieutenant A. H. Ohmann-Dumesnil, assistant surgeon, National Guard of Missouri, St. Louis.

A clinic will be conducted at Rush Medical College in the afternoon of the first day by Surgeon-General Joseph D. Bryant, of New York, and Surgeon-General J. D. Griffith, of Missouri.

The members of the association are cordially invited, through the courtesy of Captain Louis A. La Garde, U. S. Army, to inspect the Medical Section of the Government Exhibit at the Columbian Exposition, which will be found principally in the Army Hospital, which is an eighteen-bed structure, built in accordance with the plans and specifications furnished by the Surgeon General of the United States army. The plan is one of the recognized ones for a post hospital, and in the arrangement of the ward, dispensary, storeroom, offices, etc., it differs but little from the hospital of a permanent army post.

The ward is not fitted up for patients, however, as it is not intended to treat patients here. The space in the ward is to be devoted: (1) To the display of two hospital beds, to show the pattern of bunk and the bedding in use in army hospitals; (2) models to show the evolution in hospital construction in the Medical Department of the army; (3) models of hospital steam vessel and hospital cars; (4) a number of wet and dry preparations illustrating pathological lesions of various kinds; (5) about three hundred bromide enlargements and transparencies, illustrating the various histological and pathological tissues of the body; (6) a series of eighty consecutive sections of bone, illustrating the form and structure of osseous tissues; (7) ten series of consecutive sections of human embryos, illustrating the anatomy of various portions of the body; (8) a collection of microscopes illustrating the evolution of the instrument; (9) a collection of deformed leaden bullets, gathered from cases during the War of the Rebellion; (10) a collection of specimens showing bony lesions of gunshot injuries from the same sources; (11) a collection of specimens showing the difference in destructive effect on bones between the leaden projectile of the 0.45 caliber Springfield rifle and the German silver mantle projectile of the 0.30 caliber experimental Springfield rifle.

The dispensary contains a full outfit of drugs, dressings, etc., and the storeroom contains supplies for one hundred men for one year. The post surgeon's office contains a collection of medical books and periodicals as by the standard supply table of the Medical Department.

Two of the rooms up stairs are to be used as office and reception room, and the space in the other two rooms is to be devoted to the uses of a clinical and bacteriological laboratory.

In this department will be seen a number of thermostats in operation, a collection of such cultures as particularly interest the general practitioner, the method of preparing media of various kinds, methods of staining bacteria in and out of tissues, the drying of blood on cover slips, and the staining of the same by the Biondi-Ehrlich method, to show the difference between the anemias and leucæmias, the methods of hardening tissues and the cutting of sections by the microtome, as well

as the more common methods of staining and mounting sections for examination under the microscope. For the intelligent supervision of this department the services of Dr. W. M. Gray, of the Army Medical Museum, Dr. Meade Bolton, and possibly Dr. Thayer, of the Johns Hopkins Hospital, have been secured.

In two framed hospital tents near the hospital will be exhibited models showing the evolution in the transportation of sick and wounded in time of war.

There will be exhibited under canvas also a field hospital of twenty-four beds; it is proposed to place this exhibit in the encampment, as the field equipment of the Medical Department can only be effectually shown with troops in the field. It is proposed as one of the chief features in this display to have a contingent of the Hospital Corps from Fort Riley for the purpose of illustrating the ambulance service, litter drills, the methods of rendering first aid to the wounded, etc.

Staff-Surgeon Professor Finkler will explain and exhibit the cultures and apparatuses of Koch's laboratory.

**Mr. Ernest Hart on Cholera in India.**—We are indebted to the *British Medical Journal* for advance proofs of an address on Cholera; Where it comes from and how it is propagated, by the editor of that journal, Mr. Ernest Hart, delivered before the American Medical Association on June 5th. Mr. Hart's address concluded as follows:

"Religious pilgrimages are a fruitful means of spreading cholera in the East. In 1866 thirty thousand pilgrims died of cholera at Mecca. And here let me mention one of the customs of that pilgrimage which goes far to explain the intensity and the fearful mortality which attend any outbreak of cholera among the Meccan pilgrims. At a given period the pilgrims stand naked in turn by the holy well; a bucket of water is poured over each man; he drinks what he can of it, and the rest falls back into the well. The water of this well has been analyzed by an English chemist, Dr. Frankland; it is fearfully polluted with abominable contaminations. In 1866, within a few days of the ceremony, the road for twelve miles to the foot of Mount Ararat was thickly strewn with dead bodies.

"In a report in June, 1891, Dr. W. J. Simpson, an able and energetic health officer of Calcutta, gave an interesting account of two large pilgrimages which he personally witnessed in that year—one in the endemic area of Bengal and the other in the non-endemic area or north part of India. The first of these pilgrimages was the Ardhodaya Jog, which is held at Calcutta and other sacred places near Calcutta, at rare intervals of twenty-seven or twenty-eight years. The purity to be obtained by bathing in the Ganges during this festival is exceptionally great, and therefore the gathering of pilgrims at the several bathing shrines was, on its own merits, a very large one. Kalighat, where the gathering in question took place, is in the suburban area of Calcutta, on Tolly's Nulla, a small tidal creek which is held to be more sacred than the Hooghly. The nulla can be waded across at low tide, but it is the receptacle of unspeakable filth of all kinds. After describing the insanitary arrangements of the neighborhood, Dr. Simpson remarks that 'without a good water supply, or drainage, or proper means of disposal of the excreta and sullage, with crowding together of huts and houses irregularly placed, and with the filthy tidal nulla, which is practically the sewer of the district, and with numerous polluted tanks, Kalighat, it may be surmised, is at no time a healthy spot, and at all times a danger to pilgrims.' On the occasion in question at least one hundred and fifty thousand people came into Calcutta in the first and second week of February, and to describe the crowding which occurred in the nulla on the festival day is difficult. Dr. Simpson performs this task very graphically by appending to his report a photograph which he himself took on the morning of February 8th. The crush is seen to be very great, and it is marvelous that no accidents happened; the tide is low, and the bathers, even in mid-stream, have not the water much above their knees. A collection of boats, extending as far as one can see, is so great and close together that only occasional glimpses of the water are to be obtained, and these boats are crowded with men, women, and children. Dr. Simpson gives details of an outbreak of cholera which occurred among these people, as many as fifty-one cases appearing on February 11th. The pilgrims had to be soon dispersed, and though this dispersal checked a larger outbreak at Kalighat which

would have only widened its circle afterward, it could not prevent those already infected from suffering on their way home. Consequently, at some of the principal railway stations, sick people had to be taken out of the trains; passengers by boat died on their voyage, their bodies being thrown overboard; while travelers on foot were picked up dying and dead on the roads.

"Dr. Simpson's description of the great Kumb festival, which occurs once in twelve years at Hurdwar, is also very graphic, and photographs taken by Dr. Simpson at the festival of 1891—copies of which I have before me—show the sacred pools and the approaches to them to be bidden by a mass of semi-naked human beings. The pollutions to which the sacred pool is exposed on these occasions are indescribable. There is not only the washing of the naked fakirs, who cover themselves with wood ashes as their only clothing, and the general bathing of the pilgrims, who are not all in the cleanest of clothes—several, moreover, on the occasion in question being seen bathing with skin diseases upon them—but the ashes of deceased relatives, inclosed in little red bags, are brought from the different homes of the pilgrims and thrown into the pool. Can it be wondered at that, when cholera cases have been among the pilgrims, disease and death should have spread broadcast?

"Reverting again to the sanitary administrations of India and the difficulties to be encountered, I fully recognize that very much has been done in the way of sanitary reform under English rule. This was shown by Surgeon-General Sir W. Moore, in an interesting paper read by him before the International Congress of Hygiene, which met in London in 1891; but at the same congress the authors of numerous other papers showed the amount of sanitary work still urgently waiting to be done in India. One and all of those authors placed the need for better water as the most pressing want throughout India, especially in the villages, which contain ninety-five per cent. of the people of India.

"Greater energy and more systematic administration are much needed in regard to the sanitation of India, and England's imperial responsibilities in this matter are very heavy, not only to the native races under her protection, but to civilization at large. At the International Hygienic Congress in Vienna the remark was constantly made, 'You English have by your sanitary improvements prevented cholera from gaining a foothold in England, why do you not attack it in its birth-place, and prevent it springing into life in India?' And the same question has more recently been asked by Dr. Talafuss, of Tiflis, and by M. Monod, the Director of the Public Health Department of the French Ministry of the Interior, in his work on *Cholera in Finistère*. We may well closely question ourselves why we have not succeeded in carrying further than we have done the great work of improving the sanitary circumstances of Indian populations. It has not been, as Sir Douglas Galton has pointed out, for want of knowledge. The following scheme for a new public health service for India has been drawn up by an eminent medical officer in India, who has himself long been engaged in sanitary work and organization. I commend it as a useful suggestion to our Indian Government:

"1. An imperial sanitary department attached to the Government of India.

"2. A provincial sanitary department attached to each of the Provincial Governments, such as Bengal, N. W. Provinces, Punjab, Madras, Bombay, Central Provinces, etc.

"3. A local sanitary department attached to each municipality, district board, etc.

"4. The imperial sanitary department should be administrative and scientific, and quite distinct from the sanitary department of the army. It should consist of: (1) The sanitary commissioner with the Government of India; (2) deputy sanitary commissioner; (3) a medical statistic; (4) veterinary commissioner; (5) sanitary engineer; (6) a minister of health, having a seat in viceroy's council, as president. Scientific agents: Laboratory with trained experts. Duties: The advising of the viceroy and council on important health matters, either initiated by the imperial sanitary department, or referred to it by the local governments; the collection and publication of information as to epidemic disease existing in India and in other countries; the right of asking from provincial governments what they propose to do, or have done, in checking or inquiring into diseases affecting man, animals, or agricul-

ture in their provinces; the arranging that all administration reports shall be drawn up on a uniform plan for ready reference; the acquiring of all information regarding the movements of pilgrims, coolies, and emigrants, and the advising the provincial government, and resuming the latter to take proper precautions; the consideration of new sanitary laws, etc.

"2. Provincial sanitary department, to consist of the following sanitary officers appointed by the local government: (1) Sanitary commissioner; (2) assistant sanitary commissioner; (3) sanitary engineer; (4) a president, who should be a high officer in the civil service. Traveling agents: Deputy sanitary commissioners or inspectors, veterinary surgeons, deputy sanitary engineers, as may be required. Scientific agents: Trained professors and assistants in Government laboratory for bacteriological, chemical, agricultural work, etc., and general sanitary investigations requiring to be done in laboratory. Duties: To control local authorities; to institute special investigations at any particular spot on any particular subject; to make by-laws and amend sanitary laws; to investigate diseases of men and animals, and study agricultural pests, etc.; to analyze waters, etc.

"3. Local sanitary departments, to consist of municipal commissioners or district magistrates, with civil surgeon when obtainable. Executive agents: A health officer, attached for one or more towns; an engineer in similar position, and a sanitary staff for each place as required. Duties: Conservancy, water supply, building regulations, drainage, registration of births and deaths, vaccination, stamping out of infectious disease, and informing provincial authority by weekly reports as to the prevalence of cholera, small-pox or other dangerous disease."

**The late Dr. Charles Carroll Lee.**—At a meeting of the medical board of the New York Foundling Hospital held on June 2d the following was adopted:

The medical board of the New York Foundling Hospital with sorrowful feelings deplores the loss of one of its members in the person of the late Dr. Charles Carroll Lee, an attending physician of this asylum nearly from its inception a quarter of a century ago.

A man of courtly manners, he was at the same time most simple and kind-hearted.

In the early years of his professional life he answered the trumpet of his country's call, and served with the army as assistant surgeon until the close of the war.

His knowledge of his profession was varied, sound, and extensive, and he coupled with this a wonderful grace and tact that made him a most pleasant man to meet.

As a citizen, relative, and friend, he was rich in the possession of a superabundance of civic and domestic virtues, and all those eminent attainments, added to the excellence of a spotless private character, were appreciated not only by his immediate colleagues, but by the profession at large.

It can safely be said of him that, while he was a good physician, he was a true man, prompt and efficient in all that pertained to professional life. No laggard was he.

We feel that he has passed to his reward, to enjoy the dawning of that celestial day that knows no night, the recompense of a useful and well-spent life.

Resolved, That to his bereaved family our respectful sympathy we tender, and that a copy of this preamble and resolution be sent to them. Also that a copy of the same be spread in a minute on the records of the medical board and published in the medical journals of this city.

J. LEWIS SMITH, M.D.,

[Signed.]

GEORGE F. CAREY, M.D., *Committee.*

JOHN P. MCGOWAN, M.D.

**The Surgeoncy of the Twelfth Regiment, N. G. S. N. Y.**—Assistant Surgeon C. L. Lindley has been promoted to the surgeon with the rank of major, vice Dr. Nelson H. Henry, appointed assistant surgeon general.

**The New York Foundling Hospital.**—Dr. William P. Northrup has been elected to the visiting board of the hospital, to fill the vacancy caused by the death of Dr. Charles Carroll Lee.

**The Shelby County, Indiana, Medical Society.**—The announcements for the next meeting, on Monday, the 12th inst., are as follows: Mouth-breathing, by Dr. T. C. Kennedy; and The Diseases Incident to Dentition, by Dr. J. M. Adams.

**Change of Address.**—Dr. Henry H. Thorp, to No. 224 Central Park West.

**The Death of Dr. Rawdon Macnamara, of Dublin,** in the early part of April, removes a leader from the medical councils of Ireland. His father was a distinguished physician and professor of Dublin. Mr. Macnamara was identified with the College of Surgeons as professor and president and with the Meath Hospital as surgeon for many years. His degree of M.D. was an honorary one granted by the University of Dublin in 1870. He was an active member of the General Medical Council of Great Britain.

**The Death of Dr. William B. Leonard** is announced as having taken place on Tuesday, May 30th. He was a graduate of the Medical Department of the University of the City of New York, of the class of 1876. A great portion of his professional life had been devoted to the design and construction of surgical instruments.

**The Death of Professor Theodoros Aretaios, of Athens,** was recently announced in the *British Medical Journal*. An obituary note in a subsequent number of the same journal speaks of him as the foremost surgeon of Greece. At the time of his death he was professor of surgical pathology and clinical surgery in the University of Athens.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 21 to June 3, 1893:*

CALDWELL, D. G., Major and Surgeon, is hereby granted leave of absence for twenty-five days, to take effect on or about June 5, 1893.

WALKER, FREEMAN V., Captain and Assistant Surgeon. The leave of absence granted on surgeon's certificate of disability for treatment in the Army and Navy General Hospital is extended to June 30, 1893.

KENNEDY, JAMES, First Lieutenant and Assistant Surgeon (recently appointed), will proceed from Troy, Abbeville County, S. C., and report in person to the commanding officer, Fort Riley, Kansas, for duty at that post.

SKINNER, JOHN O., Major and Surgeon, will, by direction of the President, report in person to Colonel Henry W. Closson, Fourth Artillery, President of the Army Retiring Board, at Washington Barracks, D. C., when required by the board for examination by it.

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, is relieved from further duty in the Department of Texas, and ordered to join his proper station, Fort Sill, Oklahoma Territory.

STARK, ALEXANDER N., First Lieutenant and Assistant Surgeon, will proceed from Norfolk, Va., and report to the commanding officer, Fort Monroe, Virginia, for duty at that post.

KULP, JOHN S., First Lieutenant and Assistant Surgeon, will proceed from Wilkesbarre, Pa., and report to the commanding officer, Columbus Barracks, Ohio, for duty at that post.

MUNSON, EDWARD L., First Lieutenant and Assistant Surgeon, will proceed from New Haven, Conn., and report to the commanding officer, Jefferson Barracks, Missouri, for duty at that post.

FLAGG, CHARLES E. B., First Lieutenant and Assistant Surgeon, will proceed from Indianapolis, Ind., and report to the commanding officer, Presidio of San Francisco, Cal., for duty at that post.

LYNCH, CHARLES, First Lieutenant and Assistant Surgeon, will proceed from Syracuse, N. Y., and report to the commanding officer, Fort Omaha, Nebraska, for duty at that post.

GODFREY, GEY C. M., First Lieutenant and Assistant Surgeon, is ordered to proceed to Fort D. A. Russell, Wyoming, and report in person to the commanding officer of that post for duty.

KIMBALL, JAMES P., Major and Surgeon. The leave of absence granted on surgeon's certificate of disability is extended two months on surgeon's certificate of disability.

POINDEXTER, JEFFERSON D., Captain and Assistant Surgeon, is relieved from duty at Fort Nebraska, and will report in person to the commanding officer, Fort Bowie, Arizona, for duty at that post.

BROOKE, JOHN, Major and Surgeon, is relieved from duty at Fort Leaven-



work, Kansas, and will report to Philadelphia, Pa., and enter upon temporary duty as Attending Surgeon and Examiner of Recruits in that city.

WHEELER, WILLIAM D., Lieutenant Colonel and Deputy Surgeon General, is granted leave of absence for one month.

JONSON, RICHARD W., Captain and Assistant Surgeon, is granted leave of absence for fifteen days, to take effect upon his relief from duty at Fort Bowie, Arizona Territory.

LEWIS, WILLIAM F., First Lieutenant and Assistant Surgeon (recently appointed), will proceed from Kinston, North Carolina, and report in person to the commanding officer, Fort Assiniboine, Montana, for duty at that station.

PRICE, CURTIS E., Captain and Assistant Surgeon, is granted leave of absence for four months on surgeon's certificate of disability.

SHANNON, WILLIAM C., Captain and Assistant Surgeon, now in this city, is relieved from further duty at Fort Apache, Arizona Territory, and will report in person to the Surgeon General for duty in his office, *vice* PERLEY, HARRY O., Captain and Assistant Surgeon, who, at his own request, is relieved from duty in that office, and will report in person to the commanding officer, Plattsburgh Barracks, New York, for duty at that station.

SHANNON, WILLIAM C., Captain and Assistant Surgeon, is, by direction of the President, relieved from further duty under the Intercontinental Railway Commission, appointed under the provisions of the act of Congress approved July 14, 1890.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 3, 1893.*

DR BOIS, F. L., Medical Director. Detached from the Philadelphia and ordered to the Chicago.

CRAIG, T. C., Passed Assistant Surgeon. Detached from the Boston, to return home, and granted three months' leave.

BOGERT, E. S., Passed Assistant Surgeon. Detached from the Philadelphia and ordered to the Boston.

SMITH, E. R., Passed Assistant Surgeon. Detached from the Norfolk Hospital and ordered to the Chicago.

URIC, F. J., Passed Assistant Surgeon. Detached from the Chicago and placed on waiting orders.

GUEST, M. S., Assistant Surgeon. Detached from the Franklin and ordered to the Philadelphia.

WIEBER, F. W. F., Passed Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

SPRATLING, L. W., Assistant Surgeon. Detached from the St. Louis and ordered to the Naval Hospital, New York.

#### Society Meetings for the Coming Week:

MONDAY, June 12th: New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society, New York (private); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynaecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association; Shelby County, Indiana, Medical Society.

TUESDAY, June 13th: New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Chemung (annual)—Elmira, Chenango (semi-annual), Delaware (annual), Erie (semi-annual)—Buffalo, Genesee (annual)—Batavia, Livingston (annual), Onondaga (annual)—Syracuse, Oswego (annual)—Mexico, Rensselaer, St. Lawrence (semi-annual), Schenectady (semi-annual)—Schenectady, Steuben (annual)—Bath, Warren (annual)—Lake George, and Wyoming (Warsaw), N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynaecological and Obstetrical Society; Northwestern Medical Society of Philadelphia.

WEDNESDAY, June 14th: New York Pathological Society; American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany, Cortlandt (annual), Dutchess (semi-annual)—Poughkeepsie, and Montgomery (annual)—Fonda, N. Y.; Mid-

dlesex, N. J., County Medical Society (annual); Philadelphia County Medical Society.

THURSDAY, June 15th: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, June 16th: New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynaecological Society.

SATURDAY, June 17th: Clinical Society of the New York Post-graduate Medical School and Hospital.

## Proceedings of Societies.

### AMERICAN GYNÆCOLOGICAL SOCIETY.

*Eighteenth Annual Meeting, held in Philadelphia on Tuesday, Wednesday, and Thursday, May 16, 17, and 18, 1893.*

The President, Dr. THEOPHILUS PARVIN, of Philadelphia, in the Chair.

(Continued from page 636.)

**Operations upon the Uterine Appendages with a View to preserving the Functions of Menstruation and Ovulation** was the title of a paper by Dr. WILLIAM M. POLK, of New York. This paper was accompanied by the tabulated histories of a large number of cases in which conservative operations upon the tubes and ovaries had been practiced. It was based upon the principle that, except for women who were approaching the menopause, it was better, because more natural, to retain the function of menstruation, with the possibility of conception. Young women were better off with this function than without it. Therefore the author's aim had been, in a large number of cases in which a certain portion of sound tissue remained in the tubes and ovaries, to preserve that tissue, excising that which was diseased and harmful. If the disease was such that the entire organ was destroyed there was, of course, no excuse for retaining it. The tube, if healthy, should be allowed to remain, though the ovaries might require removal, or portions of the tubes or ovaries might be allowed to remain, the segments being brought into such apposition that the passage of the ovum into the duct would still be possible. A case was narrated in which a portion of a tube and a portion of an ovary on one side had been removed, together with the entire appendages from the other side, and the function of menstruation was retained.

Dr. ANDREW F. CURRIER, of New York, disagreed with the author as to the fundamental proposition of his paper. He did not believe it was true that young women were necessarily better off for the preservation of the function of menstruation, or even for the possibility of conception. That would imply that Nature never made mistakes, and every one knew that in regard both to the structure and to the functions of women's genital organs the work of Nature was often seriously at fault. If the proposition advanced by the author was true, we should have to admit that all the work of the past fifteen years in producing the menopause artificially had been mistaken, and such an admission was not to be thought of. Notwithstanding these facts, it was willingly conceded that the trend of the author's argument had been in the right direction. Scientific surgery should be conservative surgery, and should always ask: How much can be saved? not How much can be removed? Illustrative of the injury resulting from mutilation of so important an

organ as the ovary, a case was narrated in which the speaker had adopted the author's conservative method in saving the apparently healthy portion of a diseased ovary. The operation had quickly been followed by the development of papilloma in the structure which had been retained, requiring a second abdominal section. Illustrative of the good results which might follow, another case was narrated in which, in a sterile woman, a retroflected and fixed uterus had been released and ventrofixated and the diseased appendages on one side were removed, together with a portion of a diseased ovary on the other side. Pregnancy and delivery of a healthy child at term had resulted.

Dr. G. M. EDEBOHLS, of New York, approved in general of the propositions which had been advanced by the author, but did not believe that they were yet sufficiently settled to warrant their general adoption.

Dr. J. W. WILLIAMS, of Baltimore, believed that many ovaries and tubes were still being sacrificed without adequate cause, so far as could be determined from careful microscopic examination of the specimens. His opinion was based upon the examination of a large number of specimens which had been removed by five of the prominent operators in Baltimore, whose specimens had been sent to him for examination.

Dr. M. D. MANN, of Buffalo, had adopted the suggestions that had been advanced by the author, with very gratifying results.

Dr. JOSEPH PRICE, of Philadelphia, referred to the statistics of Sir Spencer Wells, by which it appeared that in more than two hundred cases in which ovarian cysts had been removed, the remaining healthy ovary being retained, pregnancy had resulted. He had seen many similar good results in his own practice. He was unwilling to believe, however, that any benefit could result to the patient by retaining tubes the pavilion end of which had been destroyed by inflammatory action. They were functionally useless and could only be a source of harm.

Dr. A. P. DUDLEY, of New York, narrated two cases in which the conservative method suggested had been adopted. Even though a second abdominal section was required, no harm would be done by an attempt to retain structures which were apparently normal.

Dr. POLK admitted that the work which had been done was entirely experimental. The future would show whether the continuation of such experiments was warrantable. He conceded that Dr. Currier's warning in regard to possible bad results from the partial removal of irritable organs like the ovary was timely and important. He adhered to his proposition that all natural functions, including that of menstruation, should be preserved as long as possible.

**The Ætiology of Dermoids of the Ovary and Testicle** was the title of a paper by Dr. ARTHUR W. JOHNSTON, of Cincinnati. He stated that he was now able to explain the origin of ovarian dermoids; that they arose from the ova of the patient, and not from any malformation of the epiblast in the embryo from which she had sprung. Bland Sutton had shown in 1888 that dermoids were never found in any part of the ovary except that which contained Graafian follicles, and that it was in such follicles that they originated. The dome of the ovary was the only portion in which ova were formed. The hilum of the ovary contained the remnants of the Wolffian body and was practically degenerated kidney tissue. The parovarium, Kobelt's tubes, and Gartner's ducts were the degenerated ducts of the Wolffian body, and bore the same relation to it that the hilum and ureter bore to the kidney. Analogous work had not as yet been done upon the testicle, but it was believed by the author that dermoids of that organ were never found in any

except the semen-producing portion. Sutton had been in error in believing that the fibrous-tissue structure in dermoids originated in the stroma of the ovary and was not a part of the new growth. Every tissue of the adult body was duplicated in dermoids, the mesoblast and hypoblast as well as the epiblast. Sutton had shown conclusively that the ordinary ovarian tumor was little less than a dropsy of the Graafian follicle, and that there were many multilocular tumors in which only a small patch of skin could be found, thus bringing the tumor into the dermoid variety; and, hence, that the two varieties shaded into each other. With this conclusion the author disagreed, for he believed that the small patch of skin represented the original site of the ovum which had never been freed from the wall of the Graafian follicle, and got its developmental start resulting in no higher grade of growth than a small patch of dermal structure. He had long ago come to the conclusion that dermoids were due to some physiological law which had gone amiss. In the first case which he had studied there had been found a well formed upper jaw with an incisor, a canine, and a bicuspid tooth in proper order in a well-formed alveolar process. The woman from whom it had been removed was sixty years old and had had the tumor more than forty years. This and other portions of structure in the same specimen seemed to indicate attempts at the formation of a human frame. The result of fifteen years of study since this first specimen had been examined was that the theories of the past concerning these tumors were inadequate, and that, while the cause was to be sought in embryology, it was not in the embryonic state of the mother herself, but in that of her individual ova, that we should find the true solution. It was believed that ovarian and testicular dermoids were due to the functional parts of these organs going wrong in the development of ova and spermatozooids. The author himself had seen a specimen which contained not only epiblastic but mesoblastic and hypoblastic structure; in other words, every tissue of the body might be represented in a dermoid formation. The discovery of the inside of a heart almost perfectly formed had produced the conviction that the foregoing statement was correct more than anything else that had been found. Of equal importance also was the discovery in another specimen of a bicuspid tooth, a lock of hair six feet long, and half of a tongue with well-formed papillae. These specimens seemed to show that ovarian dermoids were due to the faulty development of the ovum itself, not the ovum from which the mother sprang, but her own individual ova, illustrating the possibilities which obtained when these were retained and nourished, but not fecundated. The author's belief was that the ovum, up to the time of its separation from the wall of the Graafian follicle, was a protozoon not only in appearance but in fact. It contained both male and female elements, and had the power of self-impregnation like the tapeworm and other higher grades of *Protozoa*. At the time when it separated from the wall of the Graafian follicle it extruded two globules which were known to constitute one of the polar cells. Analogous changes took place in the testicle. The failure of either the ova or the spermatozooids to leave the bisexual condition was the point from which dermoids of the ovary and testicle sprang. Embryologists had looked at the wrong point of development in studying the formation of these monstrosities; they should have gone to the pathological condition of the reproductive organs rather than to the development of the individual. It was true that dermoids sprang mainly from the epiblast, but they had hypoblast and mesoblast as well. The conclusions were: 1. Embryology was the proper field in which to study dermoids, and it was in the formation of the ovum itself and not in the stage of formation of the individual that we must expect to find this fault. 2. No prac-

tical use had yet been made of the long-known fact that up to a certain point we were all *Protosom*, as in the later stages we became amphibians, etc. 3. It was in the study of this protozoic age that we must expect to find the seeds which resulted in the formation of dermoids. 4. The author's studies accentuated the fact that a human being in its development passed through all the stages of animal life, and that a failure to pass from one stage to the next higher was sure to leave its imprint in the shape of a pathological condition.

**Membranous Dysmenorrhœa** was the title of a paper read by Dr. T. A. REAMY, of Cincinnati. It consisted in the narration of four cases in which a cure had been effected, the treatment in all cases being nearly the same—repeated curettings at short intervals, at least four being required to effect a cure. After each curetting the canal had been carefully treated to an application of pure carbolic acid. The dysmenorrhœa, the passage of membranous casts, and the inflammatory symptoms had been relieved in all the cases which were reported, no reaction of an unfavorable character had resulted, and in one of the cases conception had followed. The method was deemed an available one for a very troublesome condition.

Dr. T. A. EMMET, of New York, believed that the source of trouble in membranous dysmenorrhœa was to be sought in the nervous system. The results of treatment in his experience had been unsatisfactory.

Dr. C. CLEVELAND, of New York, had obtained good results by curetting and packing of the uterine cavity.

Dr. E. C. CUSHING, of Boston, had been interested in studying the tissue which was obtained from the condition under consideration. It closely resembled decidua tissue, and might give rise to the suspicion of the existence of ectopic gestation in some cases. He had observed the condition usually in married women, rarely in the unmarried.

Dr. REAMY believed that the inflammatory character of the condition was established. Perhaps it was an acute process ingrafted upon a chronic one. He had great confidence in the treatment advocated, and thought that in each instance the use of the sharp curette should be followed by that of the blunt instrument.

**The Operative Treatment of Uterine Fibromyomata** was the title of a paper by Dr. H. J. BOLDT, of New York. Galvanism was to be recommended in a certain portion of the cases as a palliative measure. Myomectomy was to be preferred to hysterectomy if it was feasible. The total removal of the organ was preferable to the partial, unless the patient was very feeble, in which case that method must be chosen which would involve the least possible shock. The intraperitoneal was preferable to the extraperitoneal treatment of the stump, and in all cases the work should be accomplished as rapidly as possible. If the pelvic floor was extremely rigid, the operation should be begun from the vagina, incisions being made before and behind the uterus, and the uterine arteries ligated. If the line of union between the peritoneal covering of the bladder and that which covered the uterus was not visible, the bladder should be distended with a warm solution of boric acid.

Dr. B. F. BAER, of Philadelphia, believed that, if a uterine tumor was as large as a fist, the removal of the uterus was demanded. He preferred supravaginal exsection, which should not be followed by sepsis.

**The Technique in Operations for Ectopic Gestation** was the title of a paper by Dr. W. T. Lusk, of New York. The specimen of a fetus which had reached the sixth month of life, was viable, and had lived twenty-five minutes after delivery, was shown. The fetus had developed within the broad ligament, the placenta having a very extensive implantation upon the intestines. This was the thirteenth recorded case of opera-

tion in the presence of a living fetus. The hemorrhage from the placenta was profuse and it was not removed. The cavity was packed after the Mikulicz method. Briesky had been the first to remove the entire fetal sac, and to show that it was possible though difficult. The prevailing opinion now was that even in advanced periods of ectopic gestation it was unwise to defer operation from any supposed benefit which would accrue to the child.

Dr. POLK was in favor of immediate operation as soon as the condition of ectopic gestation was discovered, regardless of the chances of the fetus.

**Internal Crossing of the Ovum** was the subject of remarks by Dr. H. C. COE, of New York, with the presentation of the specimen which showed a double pregnancy in the left tube. The earlier pregnancy, occurring about twelve years ago, was shown in the presence of a mummified fetus a short distance beyond the left uterine horn. Beyond this, in the same tube there was a more recent gestation of two months' duration or thereabouts, the pavilion end of the same tube being patulous. There was no corpus luteum of pregnancy in the ovary of that side, but there was one in the ovary upon the opposite side; hence the inference that the ovum had crossed from the right ovary through the peritoneal cavity to the open pavilion end of the left tube and had there become implanted.

Dr. J. W. WILLIAMS, of Baltimore, had seen three cases in which the ovum had crossed through the uterus from one tube to the other, but external crossing of the ovum was a great rarity. It had been shown by experiments upon animals with cinnabar that peritoneal waves and currents might be set up by which material might be wafted from one side of the body to the other, thence into an open tube, and thence into the uterus.

Dr. JOHNSTONE offered the theory that a tube was sometimes thrown transversely across the uterus in the course of an attack of inflammation, and might remain fixed in that position, but, its pavilion end remaining open, it might be able to grasp an ovum which was liberated from the ovary of the side opposite to that upon which the tube normally belonged. This compensatory action seemed to him more probable than the crossing of ova through the peritoneal cavity.

Dr. W. H. WATKIN, of Louisville, thought the proposition of the last speaker impossible. The transverse position of the tube as the result of inflammation was common enough, but he doubted that its purpose was as had been explained.

**Hystero-epilepsy, a Report of Seven Cases cured by Surgical Measures**, was the title of a paper by Dr. H. MARION SIMS. The opinion of Graily Hewitt was quoted to the effect that hystero-epilepsy resulted in cases of acute antelexion with pressure upon nerve filaments. In a number of cases in his collection this condition had been present and two of the patients had been cured by the Sims operation of posterior division of the vaginal portion of the cervix with the introduction of a glass stem within the uterus. In five other cases the cure had resulted after removal of the uterine appendages. Inhalations of nitrite of amyl had been found useful as a palliative measure, but a cure did not result until after the appendages were removed. The cure in the cases narrated had continued for several years and was believed to be permanent.

Dr. REAMY was not in favor of the kind of surgery which had been described. He had hoped that that kind of work had been abandoned.

Dr. S. C. GORDON, of Portland, Me., had long ago advocated the removal of the appendages for hysteria and hystero-epilepsy, and believed that in most cases the ovaries were cirrhotic and structurally diseased. He had operated many times, and the results had been that the prominent symptoms were all relieved.



Dr. W. E. FORD, of Utica, N. Y., had operated in a number of cases, and in three of them the patients were as bad as ever. He doubted whether the cases which had been narrated were cases of true hysterio-epilepsy. If Jacksonian epilepsy was present, he did not believe it could be cured by removal of the appendages. The cases narrated seemed rather like cases of hysteria than hysterio-epilepsy.

Dr. CHARLES P. NOBLE, of Philadelphia, preferred to take the middle course in this discussion. He was unwilling to believe that there were not cases of a hysterio-epileptoid condition in which favorable results could be obtained by the method recommended. In fact, he had operated in three such cases, in which the cure had seemed a lasting one. The operation should not be done, however, unless actual disease of the appendages was present.

Dr. JOHNSTONE had performed the operation under discussion several times, but for intermenstrual pain as the indication. The epileptoid attacks in all these cases had been well marked. They were often caused by the shrinking of the ovaries and the stretching of adhesions during the intermenstrual period. True epilepsy was probably not present in any such cases, and the spasms were the result of pain. There might be unconsciousness in such attacks without the existence of true epilepsy.

**The Operative Treatment of Prolapsus Uteri et Vaginae** was the title of a paper by Dr. G. M. EDEBOHLS, of New York. It was not always easy to decide as to the extent to which operative procedures should be carried upon the prolapsed and relaxed organs. The indications were different for those who were young, with whom, however, such accidents were not common, and for those who had passed the menopause. For the former the indication would be to restore the organs so that they might again perform their proper functions; for the latter the comfort and convenience of the patient constituted the chief object. In any case curetting and anterior and posterior colporrhaphy were indicated. In some cases lateral colporrhaphy had been substituted with advantage. If the uterus was large, amputation of the vaginal portion might be added to the previous steps, and, if it was not too large, the addition of Alexander's operation might be indicated. Only in extreme cases would abdominal incision with ventrofixation or ablation of the uterus be indicated.

Dr. EMMET had found that in all cases relief could be effected by means of plastic surgery. Usually operations would be required on both the anterior and posterior vaginal walls; and also on the cervix if subinvolution of the uterus was present. Very rarely would operations within the abdomen be required for the relief of prolapsus, the great object being, in his opinion, to get proper support for the pelvic blood-vessels.

Dr. E. C. DUDLEY, of Chicago, believed that, except in cases in which the uterus was heavy from the presence of a tumor, an operation upon it would not be required.

Dr. POLK had been unable to relieve all the cases which had come under his observation by plastic operations. He treated the case as if the condition was one of hernia, and the nearer the patient had approached to the menopause the more did he see the indication for removing the uterus if the prolapse of the organ was extreme. The plastic operations should be performed whether the more radical ones were or not, the vulva and vagina being restored to as nearly normal a condition as possible.

Dr. FLORIAN KRUG, of New York, had seen total prolapse only in hospital cases, among hard-working women. He had been compelled in some cases to supplement the plastic operations with hysterorrhaphy, and very rarely with hysterectomy. He had seen but one case in which colpocleisis had been required, and he had about abandoned transperitoneal hysteror-

rhaphy, which had been recommended by him a few years ago.

Dr. BOLDT seldom found ablation of the uterus necessary. He agreed with the author in giving preference to bilateral colporrhaphy with perinaorrhaphy. If senile atrophy had taken place, ablation of the uterus might be required, or ventrofixation, or shortening of the round ligaments.

Dr. DUDLEY, of Chicago, said there was one class of cases in which plastic operations were useless, and another in which they were desirable. If the axes of the uterus and vagina were in the same line, the uterus would eventually force its way out again, no matter what operation was performed; but if the axis of the uterus was brought to an acute angle with that of the vagina, the latter would form an efficient barrier against subsequent prolapse, unless the uterus was very heavy from the presence of a tumor.

Dr. A. LAPHORN SMITH, of Montreal, approved of the combination of plastic operations recommended by the author. He was also in favor of ventrofixation of the uterus after scarification of its anterior surface, the sutures to be left in position for a month, until firm union had taken place.

Dr. NOBLE still had confidence in the value of plastic operations in spite of all the arguments to the contrary. If the uterus was heavy, he would amputate the vaginal portion as high up as possible, and then do Stoltz's operation on the anterior vaginal wall. If the patient was a working woman, ventrofixation of the uterus might be advisable.

Dr. J. R. CHADWICK, of Boston, thought the weight of the uterus was not the chief factor to be considered, but rather the increase of tension with loss of strength at the vulvar opening. This opening should be sufficiently closed, the uterus having first been brought into efficient ante flexion, the walls then having sufficient firmness to hold the uterus in position. For old women he was in favor of Le Fort's operation, with the possible addition of Alexander's operation.

Dr. EDEBOHLS stated that the paper had taken into consideration only cases in which the prolapsus was uncomplicated. Ventrofixation would place the uterus at an acute angle with the axis of the vagina and would allow one to raise the uterus as high as could be desired. The buried worm-gut sutures would prevent the uterus from relapsing into a vicious position. The combined operations which he had recommended would cure prolapsus without Alexander's operation, and without Le Fort's. The object should be to restore the parts to as nearly a normal condition as possible.

**The Results of Aseptic Cæliotomy** was the title of a paper by Dr. W. H. WATKIN, of Louisville. Inasmuch as the author had been able to operate for two years without the death of a single patient, it seemed to him that his method of operating was one which could be recommended. An adequate anatomical knowledge was, of course, a prerequisite, and in addition there should be surgical cleanliness in all particulars and minute attention to details. He used as few ligatures as were compatible with safety, and seldom employed drainage-tubes. Gauze packing was used for drainage in complicated cases. The different layers of tissue of the abdominal wound were sutured separately. He usually began his operations at three o'clock in the afternoon.

Dr. GORDON preferred the early morning hours for his operations, believing that thereby there was a great gain for the patient.

**The Pathology and Treatment of Injuries of the Pelvic Floor** was the title of a paper by Dr. A. J. C. SKENE, of Brooklyn. In the anatomy of the pelvic floor the principle of the suspension bridge was applicable. Two classes of cases were to be considered: 1. Those which were in the median line below the floor. 2. Those which were transverse, above the me-

dian line, above the floor. The first class might involve the transversus perinei and sphincter ani muscles, possibly with no injury of the integuments. The second class included transverse internal lesions, involving the levator ani, the fascia, and the mucous membrane. The injury to the levator ani was usually subcutaneous, not detectable by sight, but only by feeling, the tissues being divided and retracted. Prolapse of the vagina usually followed such injuries, with or without true procotocele. This might be followed by prolapse of the uterus and bladder with hemorrhoids. There might also be subinvolution of the uterus, with hypertrophy of the vagina, and at a later stage atrophy of the levator ani. Operative procedures might be of assistance, but in many cases the bad condition would recur. The object of treatment was to restore the structures to as nearly normal a condition as possible, and it might consist merely in the removal of scar tissue. If there was laceration of the vagina, he would treat it by Emmet's method, using silk instead of silver, however, as a suture material. Flap operations were indicated only in cases in which the tear was not extensive. The transverse internal lacerations were to be treated by the Emmet method or by the author's modification of it, by which no tissue was removed, complete median laceration was effected, and the vaginal wall was united to the pelvic floor as deep as the rectum, the natural relations to the pelvic floor being thus resumed.

**A Clinical Report of Cases of Pyosalpinx treated by Uterine Drainage, with Subsequent Conception,** was the title of a paper by Dr. R. A. McRRAY, of New York. The experience which had been collected by the author demonstrated that not all cases of pyosalpinx demanded ablation of the appendages and sterilization of the patient, and that in a certain number of well-defined cases of this disease pregnancy was possible and did occur. He reported six cases in which he had been able to follow them to such a fortunate termination. Many operations could certainly be avoided if the patients were seen early enough, while the uterine ostium of the tube was still pervious. The patient should have the benefit of the doubt, if doubt as to the propriety of an operation existed. His experience had disproved Sutton's opinion that a Fallopian tube could not be drained through the uterus. The six cases had all been carefully studied, the diagnosis of pyosalpinx determined, and this diagnosis verified by competent observers.

Dr. GORDON was willing to admit that a certain, not large, percentage of cases of pyosalpinx was susceptible of treatment without abdominal section. For such his treatment would be dilatation, curetting, and the application of carbolic acid, but no packing of the cavity, which he considered an inefficient and unnecessary way of obtaining drainage.

Dr. JOHNSTON admitted the possibility of draining the tubes in some cases and emptying them through the uterus, but a true pyosalpinx was seldom cured by such a procedure, while a cure was quite possible for hæmatosalpinx and hydrosalpinx. The intra-uterine tampon was useful in producing contractions of the organ, and these also would favor the emptying of the tube.

Dr. EDEBOHL was quite willing to admit that pregnancy might occur after the cure of a pyosalpinx. The diagnosis should first be carefully made, and it was usually a possibility, and those cases in which pregnancy was possible should be distinguished from others in which it was impossible, the structure of the tube being destroyed. Every patient was entitled to an attempt at cure by mild measures before being submitted to the risk of a radical operation.

Dr. NOBLE was unwilling to accept the author's propositions. He did not believe it possible to diagnosticate pyosalpinx in every case; at least it was not always possible with him. He was willing to admit that pelvic inflammation might

sometimes be cured without a radical operation; even cases of purperal peritonitis sometimes recovered entirely, and in some of them there was at no time in their history any involvement of the uterine appendages. It was possible that some of the cases which were diagnosed and treated as pyosalpinx were in reality cases of purulent endometritis.

**Vaginal Enterocoele in Pregnancy and Labor** was the title of a paper by Dr. BARTON C. HUBB, of Philadelphia. This was a very rare complication, and was due to violent physical shock, producing elongation of Douglas's pouch. Its reduction was sometimes possible by the hand in the vagina or rectum. It had been mistaken a number of times for ovarian tumor, cystocoele, procotocele, uterine polypus, and distended and adherent Fallopian tubes. The prognosis was good if the tumor was reducible; otherwise it was bad. Rupture of the sac when greatly distended might occur during pregnancy or labor. Gangrene of the intestine had never been reported as a complication, notwithstanding the great pressure to which the tumor was subjected. The treatment should consist principally in posture and taxis. Reduction was sometimes impossible, and sometimes it occurred spontaneously. If the symptoms were urgent, it might be necessary to open the abdomen.

Dr. MAXX had seen one case of this accident, and had made the diagnosis without difficulty. No operation had been required.

Dr. H. D. FRY, of Washington, had seen one case which existed during a labor that had been attended by him, but the actual condition was not recognized until the labor had terminated. No accident resulted, and no treatment was given. The final result of the case was not known.

**Calcified Tumors of the Ovary** was the subject of a paper by Dr. J. WHITEIDGE WILLIAMS, of Baltimore. Such tumors were quite rare. They had been mistaken for osseous tumors in a number of instances, but such a formation was almost unknown. The tumors in question were calcified fibromata or Graafian follicles, and chemical analysis showed that they possessed about sixty-eight per cent. of mineral salts. Their development did not interfere with the functional activity of the uninvolved ovarian tissue by which they might be surrounded. Three cases had been reported in which there was calcification of the corpora lutea, the formation being the same as calcification in other portions of the ovary. The process was a very slow and conservative one, and was preceded by atrophy of the portions which were to undergo calcification. The condition was one which was easily produced in rabbits by means of sublimate and other poisonous agents. Coagulation necrosis of the renal epithelium was first produced. In small tumors of this character a diagnosis before seeing the tumor was impossible. Removal was indicated in all cases.

Dr. CERRIER had seen a specimen of calcification of the Graafian follicle which had been exhibited before the New York Obstetrical Society. In view of the enormous vascularity of the ovaries and the tendency in many individuals to the deposit of mineral salts in various portions of the body, it was a matter of surprise that such complications were not of more frequent occurrence. The condition seemed to him analogous to the concretions which were found in the joints of gouty and rheumatic persons.

Dr. JOHNSTON stated that such tumors should be distinguished from dermoid tumors and from lithopedion, from both of which they were distinct, as was clearly shown by the microscope. As the author had said, they were the evidence of the final degenerative changes in a series, and were especially to be found after the occurrence of scars and corpora lutea.

Dr. WILLIAMS said that the condition in question was not at all like that which obtained in the gouty diathesis. The dispo-

sition of the salts was different and progress did not take place in the same way.

**Some Elements of Success in Cæliotomy** was the title of a paper by Dr. A. LAPHORNE SMITH, of Montreal. Nothing original was claimed for the paper; it was really based upon observations which the author had made in various cities while studying the work of the best operators in order to ascertain the cause of their success. He had found that sepsis and peritonitis were the dangers that were most to be dreaded, and next in order were shock and hæmorrhage. The disinfection of the hands seemed to him more essential than any other precaution, and if this was effectual the fact that one had been in care of infectious disease was not to be considered a contra-indication to operating. He did not think it necessary to insist that a nurse in charge of a patient should not be menstruating, if all proper precautions and cleanliness were observed. Ligatures required personal attention and preparation, and so did sponges. He preferred to retain ligatures in position longer than was customary with many operators, worm-gut sutures being sometimes retained as long as a month.

**Inversion of the Uterus, with the Report of a Case,** was the title of a paper by Dr. E. P. DAVIS, of Philadelphia. The infrequency of inversion of the uterus, its gravity as a complication of labor, and the opportunity which had been offered by the given case to critically examine the conditions present had led the author to prepare his paper. The patient was a primipara, twenty years of age. Labor was slow and was terminated with the forceps. Inversion of the fundus was apparent before the delivery of the placenta. The delivery of the latter was followed by profuse bleeding and complete inversion of the uterus. Attempts to replace the organ were at first unsuccessful. The patient was in profound shock when first seen by the author two hours after delivery. Stimulants were administered, ether anaesthesia was induced, and reposition was effected after twenty minutes' forcible pressure with the fingers of the left hand folded in the form of a cone, counter pressure being exerted by the right hand upon the abdomen. The uterus was irrigated with corrosive-sublimate solution (1 to 10,000), a strip of iodoform gauze was passed into the cavity, ergot was administered subcutaneously, and various other remedies, including artificial respiration, heat, electricity, atropine, strychnine, digitalis, and ether were tried without avail. The patient died after an hour and a half in collapse. Only twenty-three cases of this complication of labor had been recorded. In most of the cases it had accompanied or followed the expulsion of the foetus. In this case the pelvis was below the average size, the child's head showing full development. An earlier use of the forceps might have prevented inversion, and chloroform anaesthesia might also have been preferable to that with ether. Whether the patient's chances of recovery would have been improved by delay in operating was uncertain.

## Miscellany.

**Dr. McConnell on Nitrate of Strychnine.**—In Dr. J. Bradford McConnell's article on Nitrate of Strychnine in Alcoholism, published in our last issue, on page 612, second column, third line, for "six decigrammes," read *six centigrammes*.

**The Need of High General Education in Medical Men.**—A long editorial article on this subject in a recent issue of the *Medical Reporter*, of Calcutta, shows that it is a topic of earnest thought in India. The following passages from that article seem to us exceedingly cogent:

"We would remind those who advocate that the education of a medical student be only medical or technical, those who are most stringent in their views that our present curriculum is as it should be, and needs no scrutiny or revision, to all such opponents we say, even at the danger of repetition, that the preparation of the intellect for the reception of knowledge is an object as important and great as the character of the knowledge to be imparted—this is the parallel: If medicine is not very important, the preparatory education for it may also be of minor importance; but if medicine is of great importance, it follows that the preparation for the study of it should be equally important. Every one will admit that some preparation is indispensable, the point in dispute being whether the preparation shall be meager or liberal; we should be able to estimate this by the value we attach to medicine itself. Can chemistry, physics, and biology afford sufficient basis for an all-round intellectual development? We do not think that the greatest enthusiast for technical education alone would affirm this, or even hardly suppose it. We know that technical education is important—nay, most important—yet the student who is only thus educated knows nothing of the history of his race; he is quite ignorant of the highest and noblest achievements of the human intellect. He is simply a chemist, biologist, or physicist.

"The real point is, in what manner can we bring, with as little waste of time as possible, trained and disciplined minds to begin their medical education, to investigate the problems of disease. Yet, though this is the real point, many will not accept the case put in this way; others no doubt will ask in a derisive spirit how the differential calculus, or a knowledge of Greek grammar, or an acquaintance with the categories of German philosophy and its vagaries, is likely to be helpful. Rhetorically it may be very effective to sneer in this way, but of course it is not conclusive. The medical student needs strength and grasp of mind, the capability to note resemblances and recognize differences—the power of determining what amount of evidence is sufficient to warrant a given conclusion; he must also possess some capacity of reading character, otherwise he will be unable to estimate correctly a patient's statement and to eliminate the personal equation; he needs to learn caution, to avoid haste, the danger of being inaccurate, while at the same time he should be free from prejudice and preconceived opinions, fallacious reasoning, confused or contradictory ideas, want of tact; these are the several pitfalls to be avoided. This is a very high standard and denotes the possession of rare abilities, which one can not be the happy possessor of without submitting to the process of a good preliminary education, however tedious and troublesome such a course may be.

"To set raw youths whose minds are wholly unformed to dissect snails, mussels, and frogs, to teach them to look down microscopes, to be familiar with the use of test tubes, is the great danger of medical education at present, . . . for this system makes these youths imagine that little else is necessary, while they are destitute of any knowledge of, and have no correct ideas regarding, observation, evidence, and how to reason logically; we believe that such a system of education is as unwise as it would be to insist, for a practical profession like medicine, that undue devotion be exercised in acquiring those branches of knowledge which go to make up what we call a liberal education.

"The old methods of education by means of the classical languages and mathematical studies is still supported, as we have said, by many of our best educationists; we have the testimony of such a ripe scholar and experienced judge of the effects of various educational systems as Cardinal Newman, who says, in one of his works, that there is ample proof that the old methods of instruction produce mental flexibility and grasp, and that there is no proof that any other methods are adequate for this purpose. Apart from purely professional work, we have to consider which is the best method for cultivating the intellect and promoting that mental attitude which would help the physician to see in a patient not only a sufferer from and a subject of disease, but a human being. For professional success, as is justly observed so often, is achieved not only by skill; the medical man knows that a sympathetic manner is a subtle attribute which enables him to so influence his patients as to make them willingly submissive, and that this attribute has no small share in making him successful. The successful family doctor has always a magnetic influence in this way, an influence which creates



implicit faith in his patients—regarding his power to do them good, and no other doctor is supposed capable of understanding their ailments so well or of administering such efficient remedies. A few only are endowed with such a sympathetic manner and such a magnetic influence, but for the many there is no other way of acquiring them than by a knowledge of different subjects, good all round culture, gifting the possessor with a keen spirit of discernment which, applied to the occasions and occurrences of daily life, we call tact. Such culture will enable its possessor to understand different types of mind, to see as they see, to sympathize with their various difficulties and apprehensions, and to soothe them to amiability.

"We ask, finally, why some have so deep a prejudice against higher culture as preparatory for the profession; its benefits are undoubted and apparent, and only prejudice can close its eyes to these facts. Is it because, as some say, liberal culture produces a state of mind not in harmony with that devotion to the dreary details of technical or professional knowledge which is so necessary, and which should be so hearty? The celebrity attained, in the past and present, by medical men possessing liberal culture is an answer to such a doubt, and demonstrates that literary culture is not a hindrance, but a stepping-stone, to scientific eminence and professional success."

It is indeed strange that any intelligent and well-informed person should question the great value of a wide range of knowledge, or, rather, mental training, as a preparation for acquiring a thorough understanding of any particular science or art. Of all the preliminaries that are commonly neglected, that of being able to speak and write one's mother-tongue correctly seems to us the one that a man can least afford to overlook. Hence we are glad to see in the *Medical Record* for June 3d an editorial of which we here reprint a portion:

"An author's style is a pretty good index of his character, and usually, though not always, agrees with his manner of expressing himself in society discussions. A few men seem to have their ideas arranged in an orderly way, so that they can be presented in a few well-chosen words. They follow the rule of saying what they have to say and then sitting down. The majority, however, apparently have no clear notion of what they are driving at, and after floundering about for twenty minutes finally conclude, leaving the impression that they have simply been 'talking against time.' This same pernicious habit is apparent in their writings—an attempt to spread a few facts over a large area. Strange as it may appear, the average physician, whose knowledge is supposed to be clear and definite, is not able to express himself tersely and accurately either in spoken or written language. This is a defect which could be easily remedied by requiring every advanced medical student and hospital interne to cultivate the habit of recording the histories of cases and his own deductions from the data collected by him and submitting his articles for literary criticism precisely in the same manner as college compositions. It is conceded that a physician should be a gentleman. Why not at the same time a master of English?"

The American Association of Genito-urinary Surgeons will hold its seventh annual meeting at the Four Seasons Hotel, Harrogate, Tenn., on Tuesday and Wednesday, June 20th and 21st, under the presidency of Dr. Edward R. Palmer, of Louisville.

The programme announces papers as follows:

Report of a Case of Papilloma of the Bladder, with Specimens and Drawings, by Dr. John P. Bryson, of St. Louis; Investigations as to the Presence of Lymphatic Nodules in the Normal Bladder and Other Parts of the Urinary Tract, and the Part they play in Certain Inflammations, with Specimens and Microscopic Preparations, by Dr. Samuel Alexander, of New York; Two Cases of Spontaneous Fracture of Stone in the Bladder, by Dr. Francis S. Watson, of Boston; Long-continued and Permanent Bladder Drainage, by Dr. Paul Thorndike, of Boston; Cases illustrating Some of the More Unusual Forms of Urinary Retention, by Dr. Francis S. Watson, of Boston; On the Treatment of Cancer of the Prostate by Suprapubic Section with Parenchymatous Injections of Proctanin Blue, by Dr. John P. Bryson, of St. Louis; Suprapubic Drainage of the Bladder in the Treatment of Extensive Urethro-rectal Fistula, by Dr. Samuel Alexander, of New York; Abscess of the Space of Retzius, by Dr. Paul Thorndike, of Boston; Exhibition of a Genital-dressing Retainer, by Dr. Bransford Lewis, of St. Louis; A Case of

Calculus Pyelitis with Complete Suppression of Urine for Seven Days, Relieved by Operation, by Dr. Arthur T. Cabot, of Boston; A Case of Double Nephrolithotomy, by Dr. James Bell, of Montreal; Union by First Intention of the Wounds following the Excision of Inguinal Bubo, by Dr. Francis S. Watson, of Boston; A Contribution to the Pathology of the So-called Strumous Buboes, by Dr. John A. Fordyce, of New York; An Odd Method of Syphilitic Inoculation, by Dr. William Judkins, of Cincinnati; Affections of the Testicle in Hereditary Syphilis, by Dr. R. W. Taylor, of New York; Some Points in the Diagnosis of Urethral Inflammations, by Dr. Samuel Alexander of New York; The Role of the Posterior Urethra in Chronic Urethritis, by Dr. Bransford Lewis, of St. Louis; An Experimental Study of the Therapeutics of Gonorrhoea, by Dr. Edward Martin, of Philadelphia; The Practical Value of Aero-urethroscopy (with the Exhibition of a New Instrument), by Dr. W. K. Otis, of New York; Exhibition of Photo-micrographs illustrating Some Pathological Conditions of the Urinary Organs, by Dr. John A. Fordyce, of New York.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

*Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.*

## Lectures and Addresses.

### RECENT DISCOVERIES IN THE NERVOUS SYSTEM.\*

By FRANK BAKER, M.D., PH.D.

PROFESSOR OF ANATOMY, MEDICAL DEPARTMENT, GEORGETOWN UNIVERSITY,  
WASHINGTON, D. C.

It is a habit of the human mind, ever prone to dwell upon personal achievement rather than upon the slow course of scientific evolution, to ascribe to individuals the discoveries that seem to mark eras in the advance of knowledge. Columbus discovered America; we pause at that, rarely thinking of the preliminary work that made the discovery of Columbus possible—of the mariner's compass and of the astrolabe, then just made useful, without which the bold navigator would have been obliged to hug the coast like Vasco da Gama and his other predecessors.

Improvements in instruments and methods precede all important advances into new territory. Not until the compound microscope was invented were the tissues of the body recognized; not until achromatic lenses eliminated the errors of the instrument was the cell theory established. No accurate and certain results could be obtained from the examination of the nervous system until Stilling, in 1842, invented the cutting of serial sections; the processes of the nerve cells were first clearly made out by Deiters and Remak in 1855, after Lockhart Claflie had invented the modern method of clearing and mounting tissues; Stilling discovered the reticular character of protoplasm in 1860, after hardening in chromic salts was invented by H. Müller, and Gerlach had found staining by carmine effective as a method of investigation; the boundaries of cells were not clearly understood until the accidental discovery that their metaplast would reduce nitrate of silver. Each improvement in method marked an increase in definite and exact knowledge.

The great development of microscopical technique during the last few decades, the double staining invented by Waldeyer in 1863, the osmic-acid stain discovered by Max Schultze (1865) by means of which the medullary sheath of nerve fibers is sharply defined, the gold and palladium stains of Cohnheim (1866) and F. E. Schulze (1867), and the aniline stains first introduced by Waldeyer and since greatly multiplied, have allowed us to attain extraordinary precision in delimitation of structural elements.

The discoveries to which I wish to call your attention to-night were preceded and made possible by two improvements in microscopical methods. The first is not so very recent, as counted by the great speed of these *fin de siècle* times, for it was in 1875 that Camillo Golgi† discovered, probably by accident, that tissues that had been exposed for a long time to chromic solutions would afterward take a most delicate silver stain, which would display every fila-

ment of nervous tissue, even the finest. The great time and unusual precautions necessary for the procedure prevented its general use, and histologists for many years looked rather askance at the results published by Golgi and his pupils. The second is the discovery made by Ehrlich, in 1886, that methylene blue injected into the circulation of living animals stains in a highly satisfactory manner the endings of the nerves. It is, unfortunately, not well adapted to the higher animals.

Until a very recent date it has been held that the nervous system is composed of at least two distinct elements. The latest edition of Quain's *Anatomy* (1891) says:

"When subjected to the microscope, the nervous substance is seen to consist of two different structural elements—viz., fibers and cells."

Gray's *Anatomy*, last American edition (1887), is no less clear:

"All nervous tissues are composed chiefly of two different structures—the gray or vesicular, and the white or fibrous."

The prevailing conception of a fiber is tolerably clear, it being that of a fibrillary core, called an axis cylinder, invested by one or more sheaths. That of a nerve cell is more vague, it being a nucleated body, very variable in size and shape, having one or more processes which usually present a truncated appearance evidently caused by the methods used in preparing the specimen. Most of these processes branch at once into fine filaments, one remaining distinct and apparently undivided. Deiters, in 1865, distinguished the former as protoplasmic processes; the latter he believed to be connected with a nerve fiber, and therefore called it an axis-cylinder process. His view was hypothetical, no demonstration of actual continuity being made. Cells are named unipolar, bipolar, and multipolar, from the number of processes they present. Apolar cells have been described, but are regarded with suspicion.

Great interest has always centered about the protoplasmic processes, some, among whom is Golgi himself, holding that their function is the collection of nutriment for the large cell body from the blood-vessels, others holding, with Gerlach, that their terminal filaments unite in a fine plexus that forms the principal substratum of the gray matter of the nervous centers, constituting a *sensorium commune* into which the fibers of the sensory nerves pass without break, their impulses passing thus from cell to cell and finally again from cells into fibers either directly or by means of the axis-cylinder fibers. These views, too, are mainly hypothetical. Gerlach's preparations were marvels of technical skill, but he never succeeded in demonstrating the passage of either processes or fibrils into an axis cylinder.

The first clear and certain light on this subject came from the investigations of His, published in a series of articles from 1879 to 1891. As in so many other cases, embryological development furnished the necessary clew.

Permit me to recall to your minds the well-known early stages in the history of the central nervous system. After the ovum has become shaped into a hollow sphere or blastula there forms on its surface the medullary groove, a shallow

\* A lecture delivered before the Biological Society of Washington.

† Sulla fina struttura dei bulbi olfattorii. *Rivista sperimentale di freniatria e di medicina legale*. Reggio-Emilia, 1875, i, 405-425.

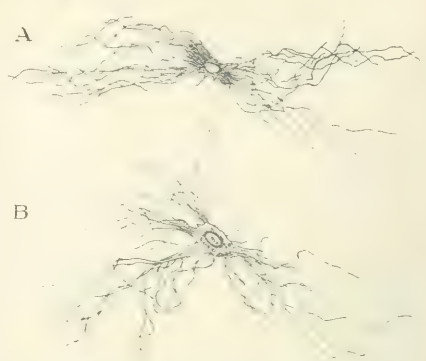
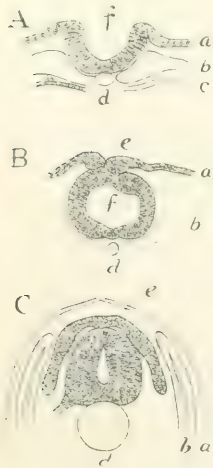
furrow that gradually deepens and, by closing at its edges, forms the medullary canal, which is therefore an infolded portion of the exterior surface. (See Fig. 1.) From the epithelial lining of this canal the brain and spinal cord develop.

This lining, at an early stage, is composed of a single layer of cells, which, however, already show some differentiation. Between regular columnar cells forming a pavement epithelium there occur large round cells with well-marked nuclei showing signs of active proliferation—the *germ cells* of His. (See Fig. 2.) These two classes of cells have a totally different history. The columnar cells form the principal sustentacular tissue of the nerve centers, while the germ cells develop into the proper neural elements.

**Fig. 1.**—Formation of the medullary canal. A. Section across the medullary groove. B. The groove closed to form the medullary canal. C. The formation of the neural crest. *a*, ectoderm; *b*, mesoderm; *c*, entoderm; *d*, notochord; *e*, neural crest forming rudiments of the spinal ganglia; *f*, medullary groove or canal.

in small cells, with great numbers of thread-like processes. (Fig. 3.) Two areas exist in which this is the predominant tissue—one about the central canal (substantia gelatinosa

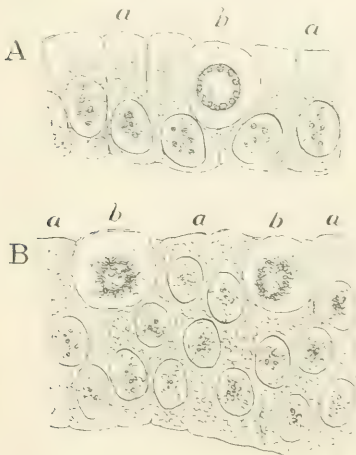
centralis), another near the tip of the posterior horn (substantia gelatinosa Rolandi). Its characteristic cells are also scattered throughout the cord, even in the white substance. The same general features occur in the brain.



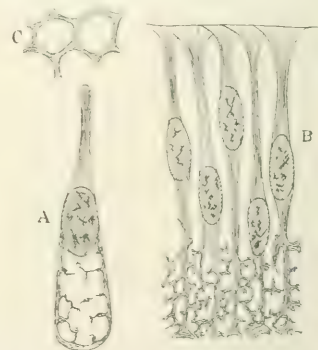
**FIG. 3.**—Neuroglia cells (Obersteiner). A. From human spinal cord. B. From ependyma of lateral ventricle.

The exact nature of this small-celled tissue, which early received the name of neuroglia, has long been a subject of controversy. Noting its sustentacular character and the similarity of its cells to those of connective tissue, it has usually been assigned to that group, although there has been given no satisfactory explanation of the occurrence of a tissue supposed to be characteristic of the mesoderm among cells of unquestionable ectodermal origin.

His shows that it has developed from the columnar cells of the medullary plate in the following manner (see Fig.



**FIG. 2.**—The epithelium of the medullary groove of the rabbit (His). A. Before its closure. B. At the time of closure. *a*, *a*, *a*, columnar cells; *b*, *b*, *b*, germ cells.



**FIG. 4.**—Formation of spongioblasts (His). A. Single spongioblast showing the liquefaction of the protoplasm and development of the reticulum. B. Arrangement of the spongioblasts in a lattice-like tissue or myelospangium. *a*, internal limiting membrane; *b*, columnar or mantle layer; *c*, velum confine. C. Surface view of the internal limiting membrane.

4): The cells increase greatly in length, their nuclei lie in several rows, but their ends always reach the surfaces of the plate, and, when that closes to become a tube, the cell axes are disposed radially. Part of the protoplasm liquefies and disappears; the remainder, consisting of the cell wall and an intracellular network, remains as a highly refractive, easily



stained metaplastm. Thus the cells change their shape and character, being centrally rod-like and columnar, united at their ends by their edges, peripherally forming a dense reticulum. From this peculiar formation they are called spongioblasts, and the entire lattice-like tissue composed by them is termed myelospongium.

There can now be distinguished three zones in this myelospongium of the medullary tube: one about the central canal, formed by the united central ends of the spongioblasts, one occupied by their nuclei, and one by the peripheral reticulum. These are respectively termed the internal limiting membrane, the columnar or mantle layer, and the velum confine. The first forms the substantia gelatinosa centralis, the second the neuroglia of the gray matter, the third the neuroglia of the white matter.

When the Golgi method is used, it is found that the silver salt is more readily reduced by the neuroglia than by the other tissues, so that by stopping the process at the proper point it is possible to mark out its elements with precision. For convenience of handling, the cords of the embryos of small animals are preferred. The spongioblasts proliferate and crowd together about the central canal, each developing a bristle-like process on its free surface, which thus becomes what has been usually designated as "ciliated epithelium." The columnar processes become more and more attenuated as the cord increases in size, still passing through the entire thickness from central canal to pia mater. (See Fig. 5.) Special aggregations of these pro-

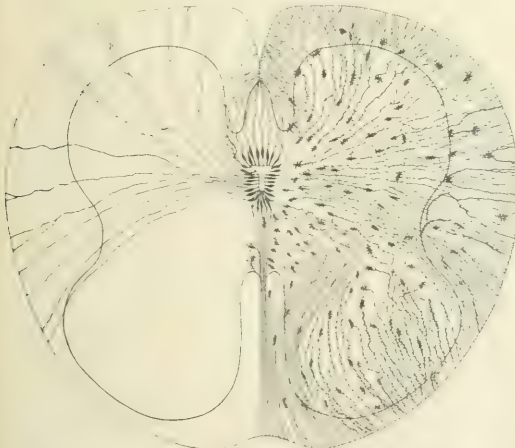


FIG. 5.—The spongioblastic framework of the spinal cord (Lenhossék). A cord of a human embryo, 14 cm. long, impregnated by the Golgi method.

cesses form septa, of which the posterior median septum is one. The peripheral ends unite to form the outer investment of the cord under the pia mater.

After a time the continuity of the processes with the cell bodies can no longer be demonstrated. They break away at either end, numerous secondary processes are developed, and a typical neuroglia cell is thus formed. The primitive condition persists, however, in fishes, reptiles, and batrachians, also in certain regions of birds and mam-

mals, as the retina (fibers of Müller) and the olfactory mucous membrane.

Thus the vexed question of the nature and origin of this tissue appears to be finally set at rest. The result is due principally to the labors of His and Lenhossék. The latter observer has traced all the changes in the spinal cord of the human embryo.

*Neuroblasts and Nerve Cells.*—The germ cells, the other class of epithelial elements of the medullary plate, do not

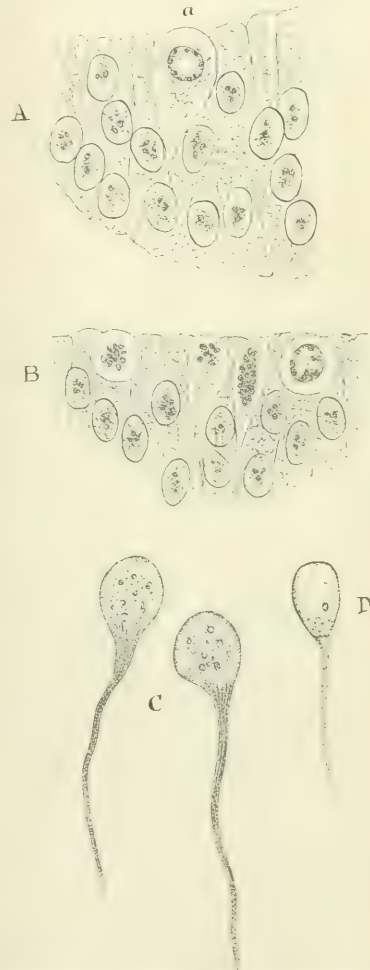


FIG. 6. Development of neuroblasts (His). A. Epithelium from the medullary canal of the rabbit soon after it has closed. Between the epithelial cells lies a germ cell, *a*, which has become pyriform. B. Epithelium from the closed medullary canal of the cat. Between the epithelial cells lie four germ cells, two of which are still spherical; the others have developed processes that extend outwardly. C. Neuroblasts from the embryo of a salamander. D. Neuroblasts from an embryo trout.

lag behind in development, but appear, on the contrary, to show an extraordinary activity. Originally occupying the

inner stratum next the free surface of the epithelium, they first begin to change their shape, becoming pointed upon one side and finally pyriform (Fig. 6, A, B). These are the apolar cells described by early observers—a transitory condition only. The pointed end continues to grow until it develops as an extended process of the cell, which, with its rounded head and tail-like appendage, strikingly resembles a tadpole, and also reminds one very much of the spermatoblasts of the seminal tubules that are developed in a similar manner (Fig. 6, C). The young cell is now called a *neuroblast*, and commences to migrate from its original seat (Fig. 7). As the myelospongium has now become fully developed, they pass outward between its columns. The velum confine appears to oppose an obstacle to their further outward progress, and upon reaching it they turn their processes aside and direct them ventrally, forming a secondary zone within the mantle layer, called by His the arcuate layer. At this stage the processes have a tendency to collect into bundles, as shown in Fig. 8. These finally

with short axis-cylinder process, which he supposed to be characteristic of the posterior horn, but which recent observers find in all parts of the cord.

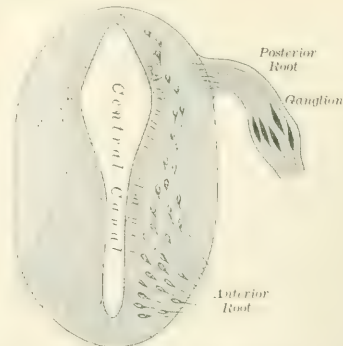


FIG. 9.—The formation of nerve roots (Edinger). Section through spinal cord of a human embryo.

While the axis-cylinder process can be distinguished from the protoplasmic processes by its more direct course and simple appearance, it is yet found that it sooner or later branches, frequently giving out a few laterals at a short distance from the cell, and always terminating, as do the protoplasmic processes, in a tuft of filaments. For the motor cells these tufts are found at a considerable distance upon the motorial end plate of a muscle fiber. Indeed, as the neuroblast grows, its terminal process has an enlarged extremity—the “cone of growth”—upon which may be observed some slight elevations, representing the rudimentary terminals. It would therefore appear that the independence observed in the developing neuroblasts is preserved in the adult tissue.

But the neuroblasts we have been considering belong mainly to the anterior roots, which since the time of Sir Charles Bell we recognize as motor or efferent. What shall be said of the posterior roots by which afferent impulses reach the cord?

*Æsthesioblasts and the Posterior Roots.*—At the time of the closure of the medullary groove a thickened portion of the epithelial lining remains just at the seam, constituting a band known as the neural crest. (See Fig. 1, C.) This becomes segmented, moves outward, and forms the spinal ganglia. Kölliker in 1844 first noted that these ganglia contain unipolar cells from which he supposed a single medullated fiber proceeded. In 1847 the significant discovery was made that in fishes the cells of these ganglia are bipolar, giving off a medullated fiber from opposite ends. In 1875 Ranvier found that the single fiber of Kölliker branches into two at a short distance from the cell (T fiber). It was then discovered that the ganglion cells in the embryos of the higher vertebrates agree with those of fishes in being bipolar, and finally His found transition forms.

These cells, for which I propose the term *æsthesioblasts*,\*

\* Lenhossék calls them *ganglioblasts*. This term could not, however, be properly applied to the cells of a similar character found in the olfactory membrane and in the retina.

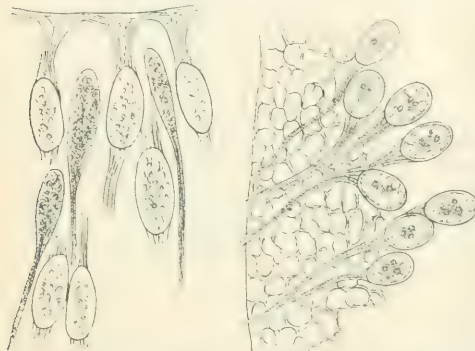


FIG. 7.—Migration of neuroblasts (His). Young neuroblasts from the spinal cord of a human embryo moving outward along the spongiosal network.

FIG. 8.—Bundles of neuroblasts (His). Young neuroblasts from the spinal cord of an embryo chick collecting into bundles along the velum confine at a locality where the longitudinal and arcuate fibers are wanting.

pierce the velum confine in the region of the anterior root of a spinal nerve (Fig. 9). The neuroblasts remain within the cord, develop secondary processes by budding in the same manner that the first was formed, and become *nerve cells*; their primitive processes continue to extend until they reach the periphery of the body, are invested with medullary sheaths supplied by the connective tissue of the region through which they pass, and become *nerve fibers*. The nerve fiber and the nerve cell are therefore parts of the same histological unit.

When nervous tissue is examined by the Golgi method we obtain the same precision as was noted in the case of neuroglia. The protoplasmic processes no longer appear as truncated stumps, but each is seen to break up into an arborescence of almost inconceivable delicacy. Some of the discoveries made are quite unexpected. Axis-cylinder processes are found on all cells, even those of the posterior horn. Golgi was able to make out two classes of cells: one with a long axis-cylinder process, which he connected especially with the motor cells of the anterior horn, another

assume a spindle shape while yet a part of the epithelium of the medullary groove. They resemble the neuroblasts in the formation of their processes, but the precocious development of a secondary process makes them bipolar. At first these are opposite—the cell is oppositipolar—then, as the cell body is pushed aside, the processes approach each other (geminipolar), and finally, as they become blended in a single prolongation of the body, unipolar. It is not likely that these changes of arrangement involve any differences of function.

One of the processes of an aesthesioblast seeks the periphery and terminates in fibrils that are either lost in the cuticular tissues or end in an expansion (tactile corpuscle, Pacinian corpuscle, end-bulb of Krause) surrounded by connective tissue. The other process grows centrally, and its final destination is one of the most significant of the recent discoveries.

The posterior roots of the cord have long been a great puzzle to neurologists. Clear and definite demonstrations of their central terminations and their behavior with respect to the other components of the cord have been wanting. Anatomists have therefore been obliged to rely upon evidence adduced from other sources. Waller, in 1852, discovered that when a nerve fiber is cut, one of its ends degenerates, and that this degeneration can be easily followed in a series of consecutive sections. Often it is the distal portion that degenerates, but not always. For example, the cutting of a spinal nerve beyond the ganglion causes a total degeneration of the distal end, while a section of the posterior root between the ganglion and the cord causes an almost total degeneration of the central end. In either case the long processes of the cells are severed from the cell body which probably controls their nutrition. After section of a posterior root degenerations are found in the posterior columns of the cord on both sides. Further experiments led to the discovery that lesions of the white matter of the cord cause degenerations in different directions—some *ascending*, as in the posterior columns, others *descending*, as in certain portions of the lateral columns. Certain tracts of the white matter could thus be separated with some precision.

This was supplemented by the embryological researches of Flechsig, who, in 1872-'76, found that some groups of the white fibers of the central nervous system always receive their myelin sheath earlier than others. By this means the results obtained by degenerations were supplemented and controlled. The aid of physiology and comparative anatomy was also invoked. As stimulation of certain cells produced definite movements, a continuity of path between cell and muscle was assumed; in some lower animals tracts were found comparatively larger or smaller than those of man, often correlated with special differences of function.

Combining the information derived from these indirect sources with the results of direct observation, the following views have been held as to the posterior roots (see Fig. 10): On entering the cord they separate into two bundles—one median, large-fibered, myelinating early, related to muscular movements; another lateral, small-fibered, myelinating

late, related to cutaneous and visceral sensibility. The first bundle passes inward to the posterior columns, thence send-



FIG. 10. Diagram showing views formerly prevalent with regard to the course of nerve fibers within the spinal cord.

ing some fibers that pass upward and perhaps downward, and are connected with muscular co-ordination and equilibration; also others that pass forward to the anterior horn and are concerned in reflex movements. Some may also pass to the gray matter of the opposite half of the cord.

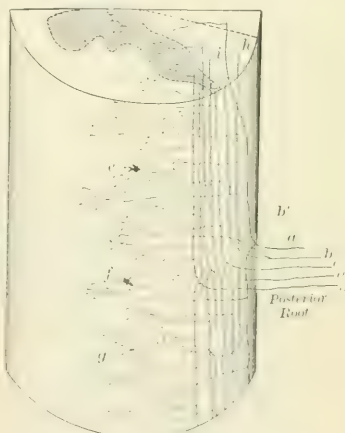


FIG. 11.—Root fibers and collaterals. *a*, *b*, fibers that pass upward and downward in posterior columns, sending collaterals to anterior horn; *b*, collateral given off from main trunk before division; *c*, fiber that passes upward and downward in the terminal zone, sending collaterals to posterior horn; *d*, fiber that passes upward and downward in the longitudinal bundle, sending collaterals to posterior horn; *e*, cell that sends an axis-cylinder process to posterior columns, where it bifurcates, proceeding upward and downward and sending collaterals to posterior horn; *f*, cell that sends process to cerebellar tract; *g*, cell that sends process downward; *h*, *i*, fibers from roots or cells at a higher level, descending and giving off collaterals.

The second bundle passes to the gray matter and is lost in the column of Clarke, the scattered cells of the posterior horn, or turns upward and downward in a fascicle of white fibers lying in the gray near the substance of Rolando.



The actual terminations have been carefully investigated by Ramón y Cajal, of the University of Barcelona, using the Golgi method of staining. His discoveries have been amply confirmed by Kölliker, Lenhossék, Van Gehuchten, and others. It is found that the great majority of the fibers of the posterior roots divide dichotomously on entering the cord, sending one branch upward and another downward. These branches form the bulk of the posterior columns (Fig. 11). From them at short intervals collateral twigs are given off at right angles. These enter the gray substance of the cord and break up into delicate fibrils, each fibril, however, remaining distinct and ending free, either by filaments or minute enlargements. The plexus imagined by Gerlach has no existence; there is instead an intimate felt-like interlacing of filaments—the *neuropilem* of His.

The area of distribution of a single nerve fiber is therefore much greater than had been heretofore imagined, as it supplies by its collaterals many different levels of the cord, passing perhaps as far as the medulla oblongata. The posterior columns of the cord are mainly composed of the ascending and descending branches of the fibers; the collaterals take for the most part the directions formerly described for the nerve fibers proper—viz., a reflex bundle to the anterior column that ramifies about the motor cells, another to the column of Clarke, forming a rich felt-work about its cells, a few fibers to the posterior horn of the opposite side, and many fibers that break into terminals within the posterior horn (Fig. 12).

There is a small fascicle apparently derived from cells of the anterior horn that passes to the posterior roots. This is probably an efferent bundle and constitutes an exception to the rule which makes the posterior roots exclusively afferent.

**The Neurons.**—On comparing the development of the anterior and posterior roots it will be seen that they are composed of essentially similar elements developed in a

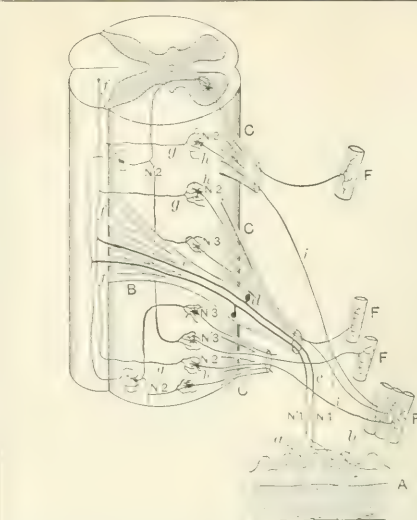


FIG. 13.—Neurons of reflex paths of spinal cord. A. Skin. B. Posterior nerve root. C, C, C. Anterior nerve roots. F, F'. Muscle fibers. The simple reflex path is composed of neuron, N. 1, that arises from the periphery by terminal filaments either in an end bulb, a, or free between the cells, b, and proceeds by a cellulipetal fiber, c, to the aesthesioblast, d, in the ganglion of the posterior root of a spinal nerve, thence by a cellulifugal process, e, which bifurcates, f, f', in the posterior columns of the cord, sending collaterals, g, g, g, that break into terminals about cells of the anterior horn belonging to neurons, N. 2. These neurons are composed of short cellulipetal processes that collect impulses, of cell bodies, h, h, h, from which spring cellulifugal axis-cylinder processes, i, i, i, that pass to the peripheral muscles through the anterior roots and break into terminal filaments in the muscular end plate. The compound reflex path is composed of a similar collecting neuron, N. 1, one or more correlating neurons, N. 2, and distributing neurons, N. 3.

similar manner. Waldeyer has given to these elements

the name of neurons. Each is composed of (1) a nerve cell with (2) its protoplasmic processes, (3) its axis-cylinder process passing into a nerve fiber, and (4) its final termination in a branching tuft. In the case of the anterior root the neuron has short protoplasmic processes and a long axis-cylinder process; in that of the posterior root the protoplasmic process is long, extending to the periphery and collecting impulses from without like the terminals of a nerve of special sense; the axis-cylinder process is short, almost immediately dividing and subdividing (Fig. 13). Lenhossék has recently made an important discovery that appears to show that both of these originate from a single primitive type. In the earthworm there are no organs like the spinal ganglia, and the sensory cells or aesthesioblasts are scattered throughout the epidermis, presenting short collecting filaments externally and sending to the central nervous system long processes that finally bifurcate like the aesthesioblasts of a vertebrate. It appears that in the course of phylogenetic development the aesthesioblasts have been gradually withdrawn from the periphery, this causing their collecting filaments to be drawn out into long processes.

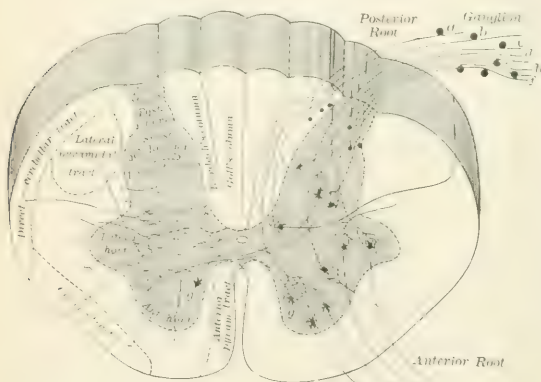


FIG. 14.—Diagram showing course of collaterals within spinal cord. a, fiber sending collateral to opposite side of the cord by way of posterior commissure; b, fiber sending collaterals to anterior horn constituting a reflex path; c, fiber sending collateral to the column of Clarke; d, efferent fiber from cell of anterior horn; e, fiber sending collateral to cell of posterior horn that forms a secondary path on the same side of cord; f, fibers sending collaterals to cells of posterior horn that form a secondary path on opposite side of cord; g, g, commissural cells. On the left of the drawing numerous collaterals are seen that belong to fibers that lie in the antero-posterior columns which are derived from cells lying at other levels.

The idea advanced by Golgi that the protoplasmic processes subserve the nutrition of the cell appears to be without foundation. Many circumstances show that they transmit impulses. In no other way can we understand the action of the cells of the spinal ganglia or those belonging to the organs of special sense.

This transmission does not involve, as was formerly supposed, an unbroken continuity of structure. It would appear that certain of the terminal filaments of the neurons are excitable to stimuli received either from the outside world or from other neurons, and that the impulses or currents thus formed are conveyed along the processes toward the nucleus of the cell, being, to use Ramón y Cajal's term, *cellulifugal*; from thence they proceed as *cellulifugal* currents along other processes to other terminals and these in turn may stimulate other neurons by contact only, either being applied closely about the body of the cell or interlacing with its arborescent filaments. To the cellulifugal currents the protoplasmic processes are assigned, while the currents of the axis-cylinder processes appear to be exclusively cellulifugal.

It should be remarked that a comparative study of the nerve cells shows that it is probable that the differentiation which we find in higher and adult animals between the protoplasmic and the axis-cylinder processes is a matter of gradual development. In the earthworm Lenhossék and Retzius have found cells that show all varieties of form, from a unipolar cell branching out into widely ramifying processes to a bipolar cell, in which there are two processes

of the same character and the same ramification, and a multipolar cell which has one axis-cylinder process (Fig. 14).

The primitive neuron appears, then, to be merely a multipolar, remarkably differentiated cell, whose processes may receive stimuli from without or excite other similar cells by contact with them.

It should be remarked that both of these functions agree fully with what we have long known with regard to cells. The endings of the nerves of special sense have always been supposed to be excited by external stimuli, and it has been known that a motor



FIG. 14.—Ganglion cells of the earthworm *Lumbicus*—as shown, by the Golgi impregnation (Retzius). A. Protoplasmic processes undifferentiated. B. Bipolar cell, two groups of equally differentiated processes. C. Protoplasmic and axis-cylinder processes fully differentiated.

nerve conveys impulses to a muscle by means of contact alone in its motor end plate.

It is conceivable from an impulse received from without by means of a neuron should be transmitted at once to other neurons within the substance of the cord, and thence referred immediately to a muscular fiber. No doubt this frequently occurs, for this would account for the simplest

forms of reflex movement. Yet it is probable that in most cases the matter is more complex than this, and that there are certain *secondary* neurons interposed. These may refer the sensation to neurons presiding over special groups of muscles which may be either on the same side or on opposite sides of the body. Recent investigations seem to make it probable that most of the impulses that cross the median line are carried by secondary paths of this character. It is now denied that any fibers from the cells of the anterior horn cross to the nerve roots of the opposite side, and while a few fibers of the posterior roots are found to cross, yet they are insignificant. Yet, as is well known, both motor and sensory impulses do actually cross. This is effected by a large number of so-called *commissural* cells found in all parts of the cord. These are cells having a short axis-cylinder process which they send to the opposite half of the cord, there terminating in the usual arborescence or passing into the white matter in one or more branches, thence proceeding to different levels.

The branches of the fibers of the posterior roots pass for the most part into the posterior columns. What, then, is the constitution of the other white columns of the cord? On investigating them they are found to be of the same general character as the posterior columns, being composed of vertical fibers that give off at short intervals collaterals that penetrate the gray matter and there terminate in the usual arborescent manner. It is impossible to actually trace these fibers throughout their whole extent, because they soon pass beyond the field of the microscope; but there can be no reasonable doubt that they belong to cells that are situated within the nervous centers either above or below the section under examination. As lesions of some portions of the cortex of the brain are followed by degenerations within the substance of the cord, it appears that some of the cells at least must be referred to that part of the system. We will therefore proceed to consider the anatomical constitution of the cortex for the purpose of ascertaining whether there are any elements there which would justify the conclusion that they are connected with the cord.

(To be continued.)

## Original Communications.

### HYDROTHIONURIA.

OR THE PHENOMENON OF SULPHURETED-HYDROGEN GAS IN URINE.

FOUR CASES. A REVIEW OF THE LITERATURE.

By J. FOSTER SCOTT, B. A. (YALE).

M. B., C. M., D. D., M. D.,  
OBSTETRICIAN TO COLUMBIA HOSPITAL, WASHINGTON, D. C.

WITHIN the past three years it has been my good fortune to meet with and demonstrate chemically the presence of sulphureted-hydrogen gas in solution in the urine in no fewer than four cases.

The subject is one which has been almost entirely overlooked, alike by the practitioner and by the writer of text-

books, though undoubtedly the condition of hydrothionuria occurs from time to time in the practice of many others.

Since my first case, over two years and a half ago, I have been constantly on the watch for others, with the result of having met with it three times since. In three of my cases, and in most of those recorded by others, the condition was associated with grave symptoms, and I believe that such will usually be the case.

Where such an untoward symptom does occur, it behooves the physician to assume "an attitude of watchful expectancy" at least, even though he may be puzzled in his diagnosis and method of treatment.

I will first give my own four cases, with the results of the chemical tests. This will be followed by a complete review of the literature bearing on the subject, and, finally, the clinical significance of the condition:

CASE I.—M. J., a negress, aged fourteen years and ten months, single, primipara. Height, five feet; weight, one hundred and ten pounds. Admitted August 22, 1890. The patient was brought to Columbia Hospital at midday, in a comatose condition, suffering with a well-marked case of puerperal eclampsia. Her friends stated that she had had twelve convulsions since two o'clock that morning. Examination on admission showed labor just beginning, the os uteri admitting the tips of two fingers. The position was occipito laevo-anterior. Temperature on admission, 101.6° F.; pulse, 112; respirations, 26. There was extreme anasarca.

The convulsions continuing with awful severity, and not yielding to chloroform anesthesia or morphine, I performed podalic version and delivered her of a full-time dead child weighing six pounds. Soon thereafter the eclamptic attacks ceased. The urine, which was drawn by catheter three hours and a half after delivery, was intensely acid and became entirely solidified on both the heat and nitric-acid tests. On the evening of the following day the nurses came to me complaining of an overpowering odor from the patient, which I at once recognized as that of sulphureted hydrogen. This odor was so strong that it nauseated the nurses, and I myself suffered with intense headaches on several occasions while making the analyses on the following days. It was fortunate that my first case was so exceedingly well marked as to force itself upon my attention at once through the sense of smell.

This led me to make a series of careful chemical tests, all of which proved satisfactorily the presence of the gas  $H_2S$ . The following were the results of my tests, the reagents conforming to the U. S. P. test solutions.

Tests.—Urine drawn by catheter August 23, 1890 (day following delivery): Amount, 12 ounces; specific gravity, 1.015; reaction, acid; albumin present in enormous amount; penetrating odor of  $H_2S$ .

Microscopical Examination.—Heavy deposit of ammonio-magnesian phosphate; broken-down blood-corpuscles; and an enormous number of active vibrios in the freshly drawn urine.

Tests for Sulphureted Hydrogen.—I. Two inches of urine in test tube +  $AgNO_3$  solution (white precipitate of albumin) +  $HNO_3$  = dark-gray precipitate at once, becoming rapidly darker and eventually exhibiting a distinct dark zone of silver sulphide ( $Ag_2S$ ).

II. Urine + excess of lead-acetate solution = copious light-gray precipitate. The excess of the reagent precipitates all the albumin in the urine, and thus, by admixture of the white albumin with the black sulphide of lead, gives a gray color.

III. Two inches of urine + one drop of lead-acetate solution = inky black precipitate of lead sulphide ( $PbS$ ), with dark-brown supernatant liquid, no white or grayish precipitate at all being caused. With this one drop of lead-acetate solution there was only an insignificant trace of albumin thrown down, yet it contained enough lead to unite with all the sulphur of the  $H_2S$  and convert it into the black sulphide of lead.

This last test, with one drop of lead-acetate solution, is one of the most delicate of all.

IV. Filter paper, moistened with solution of lead acetate and placed over the mouth of the jar containing the urine, gave, in the course of an hour or so, a dull-black color of a leaden luster. This is the test I always try primarily, as it is exceedingly delicate and easy to carry out.

V. Another characteristic test is made by using a solution of antimony (tartar emetic) to form the orange-red precipitate of sulphide of antimony. Two inches of urine + solution of antimony in excess of  $HCl$  = white precipitate of albumin, in which, after a few hours, a beautiful orange-red zone of sulphide of antimony unmistakably differentiates itself. This is a very beautiful test if the  $H_2S$  is present in large amount, but it is apt to be fallacious, as it requires a few hours in which to develop, during which time the urine may be undergoing decomposition in the test jar.

VI. Heller's test. Urine + solution of iron chloride = black precipitate of  $FeSO_4$ . If very little  $H_2S$  is present it only causes a brown discoloration.

In this, my first case, I would draw particular attention to the enormous number of active vibrios in the freshly drawn urine. This point will be considered more fully later on when I take up the clinical significance of the condition. After the appearance of the  $H_2S$  the bladder was repeatedly washed out with a weak solution of potassium permanganate. The presence of  $H_2S$  ceased soon thereafter. In this case there is no doubt in my mind that the bacteria liberated the sulphur contained in the albumin, which was present in such enormous amount.

CASE II.—J. A., female, white, aged twenty-one years; single. Admitted to Columbia Hospital, October 9, 1891, with febrile symptoms and a temperature rising every evening to 104° to 105° F. Laparotomy was done by Dr. Joseph Taber Johnson on October 14, 1891. A left pyosalpinx was found containing a fetid, blood-stained pus. The ovary and tube of the right side were normal and not removed. Before and after the operation the patient was in an exceedingly low condition, with a temperature which ranged for many days after the operation between 104° and 106° F. She lived, however, for a year afterward, eventually dying in another hospital of phthisis pulmonalis.

Her urine was tested repeatedly, but no trace of albumin was ever found either before or after the operation.

On the fifth day after the operation the examination of the urine resulted as follows: Specific gravity, 1.017; reaction, faintly acid; albumin, none; odor,  $H_2S$ .

Microscopically, there were no organized deposits or bacteria.

Now, this case is exceedingly interesting.  $H_2S$  appears in the urine without a trace of albumin. Probably the hypothesis that  $H_2S$  was liberated by the action of bacteria in albuminous urine rests upon a solid foundation in my first case, but that there may be other causes for the presence of this gas in urine is rendered evident by this, my



second case, in which there was no trace of albumin in the urine at any time for several weeks previous to or after the appearance of  $\text{H}_2\text{S}$ , nor were there any bacteria in the freshly voided urine seen. In this case the abdominal wound did not heal for several months, pieces of ligature silk from the pedicle being discharged on several occasions. There was always an offensive, feculent odor to the pus, but no  $\text{H}_2\text{S}$  appeared in the urine after there was an opening established for the discharge of pus. In this case the appearance of  $\text{H}_2\text{S}$  in the urine may be accounted for in two ways:

A. By a resorption of the  $\text{H}_2\text{S}$  from the pus-containing cavity into the blood, and its subsequent elimination through the kidneys.

B. By an exosmosis of the gas developed in the pelvic abscess directly through the living animal membrane—the bladder wall.

CASE III.—M. J., the same patient who furnished me with my first case, returns in labor twenty months later with another attack of puerperal eclampsia. In passing, I may say that this case was one of those rare examples where puerperal eclampsia occurs for a second time without the patient carrying twins.

This time labor was artificially induced with a Barnes's bag and the high forceps operation performed; she was again delivered of a stillborn child. Examination of her urine showed it to contain albumin in enormous amount, and on the sixth day  $\text{H}_2\text{S}$  was present in large volume, all the tests giving satisfactory reactions. The urine during the first few days was scanty and very highly albuminous, but after a free flow was established the  $\text{H}_2\text{S}$  disappeared spontaneously. Vibriones were present on this occasion also.

CASE IV.—E. P., a negress, aged twenty-two years; quadripara. She was admitted far advanced in labor, and delivered normally of a child weighing six pounds and three quarters in L. O. A. position.

Examination of her urine revealed albumin present in large amount.

On the second day I detected the odor of  $\text{H}_2\text{S}$ , which was also demonstrated by the previous chemical tests.

Examination of urine on day following delivery: Specific gravity, 1.029; reaction, strongly acid; color, pale red; albumin, present in large amount; odor,  $\text{H}_2\text{S}$ .

Microscopical examination = red blood discs; a few leucocytes; detached vesical epithelium; no vibriones.

Sulphureted hydrogen was chemically demonstrated. The bladder was washed out with a solution of potassium permanganate, but I doubt if the rapid convalescence in this case was dependent on the treatment.

The patient had an excellent puerperium, the highest temperature being recorded on the second day, and only registering  $101.8^\circ\text{F}$ . This case is of interest in contradistinction to the others on account of the mildness of the symptoms and the complete and rapid recovery.

*Review of the Literature.*—After looking over the references in the *Index Medicus* of the Army Medical Library with the greatest care, I have only been able to find these comparatively few cases which I here present. The presence of sulphureted-hydrogen gas in urine was recognized as far back as 1829 by Chevallier (*Journal de chim. méd.*, 1829, i, p. 179). He mentions a case which occurred in a syphilitic woman undergoing mercurial treatment, and regards it as a phenomenon of fermentation.

Höfle (*Med. Annalen*, Bd. xi, 1845, p. 415) found  $\text{H}_2\text{S}$  in the urine in a case which occurred during a small-pox epidemic in 1843-'44.

Friedrich Betz was one of the first to devote much attention to the cause of hydrothionuria.

Betz (Ueber den Nachweis und die klinische Bedeutung des schwefelwasserstoffhaltigen Urins, *Memorabilien*, 1869, p. 1) mentions a case which occurred in a man, aged thirty-eight years, of a strong constitution, who, after a night spent in hearty eating and wine-drinking, suffered with symptoms of gastro-intestinal catarrh, with much flatulence and with  $\text{H}_2\text{S}$  appearing in his urine. After a free evacuation of the bowels the  $\text{H}_2\text{S}$  disappeared.

Betz also writes up another instance (Ueber die Quellen und diagnostisch-therapeutische Bedeutung des  $\text{H}_2\text{S}$  im Urin, *Memorabilien*, 1874, xix, pp. 66-69). This was the case of a man, aged seventy-nine years, who had  $\text{H}_2\text{S}$  in the urine for a protracted time. The post-mortem examination showed hypertrophy of the prostate, which interfered with the emptying of the bladder and caused diverticula of the bladder walls in several directions.

One of these diverticula, which was exceedingly thin, pressed closely against the rectum, which, bulging out like an ampulla, was filled with stagnant feces. In this case the conditions were peculiarly favorable on account of the exceedingly thin diverticulum which pressed upon the rectum, while the bladder in its normal anatomical relations only presents a small area to the abdominal cavity.

The fresh urine in this case had a penetrating, feculent odor of  $\text{H}_2\text{S}$ , weakly acid reaction, specific gravity of 1.003 to 1.005, and contained no albumin.

Microscopical examination showed pus-corporuscles, epithelial cells, and vibriones. The catheter, which was made of silver, was discolored black by the  $\text{H}_2\text{S}$ .

Betz found that the feces in this case contained more than the usual amount of  $\text{H}_2\text{S}$ , and that the quantity of  $\text{H}_2\text{S}$  in the urine and bowel took a parallel course.

It is important to note that the ureters were as thick as a finger and that there was suppurative atrophy of the kidneys.

Betz enunciates three theories of causation as follows:

I. The  $\text{H}_2\text{S}$  develops in the bladder from a decomposition of albuminoid bodies, such as pus, blood, etc.—a rare cause.

II.  $\text{H}_2\text{S}$  appears in consequence of its resorption from the intestine into the blood and its subsequent elimination through the kidneys.

III. The  $\text{H}_2\text{S}$  appears in the urine on account of the exosmosis of the gas from the intestine into the bladder.

H. Emminghaus has fully written up two cases (Zwei Fälle von mehrfacher Perforation des Verdauungscanals und Schwefelwasserstoffgehalt im Urin, *Berl. klin. Wochenschr.*, 1872, S. 477 u 491). The first case occurred in a woman, aged twenty years, who was admitted to the hospital at the end of February, 1871, suffering with gastric ulcer. She died in collapse and with slight convulsions after being in the hospital about a week. There was a perforation between the pyloric and cardiac orifices near the small curvature of the stomach, the small intestine was

perforated twice, and the sigmoid flexure once. Four days after,  $\text{H}_2\text{S}$  appeared in the urine.

His second case occurred in a man, aged twenty years, who was admitted to the hospital March 19, 1871. He was so ill that no history could be obtained, but on post-mortem examination there were found abscesses in the small intestine, vermiform appendix, and sigmoid flexure.

In both these cases and the one of Betz's it would seem that the  $\text{H}_2\text{S}$  appeared in the urine by exosmosis through the bladder wall and its absorption into the urine.

Johannes Ranke (*Lehrbuch der Physiologie*, iii. Aufl., S. 530) made an experiment of very great importance in the study of this phenomenon. He found that if a few drops of the urine which contained the  $\text{H}_2\text{S}$  were added to other normal urine,  $\text{H}_2\text{S}$  would develop in the latter, and again a third specimen of normal urine could be inoculated from the second.

Ranke says (translation): "There is no doubt that in the formation of  $\text{H}_2\text{S}$  in urine we are dealing with the phenomenon of fermentation, which I call  $\text{H}_2\text{S}$ -fermentation. . . . The development of  $\text{H}_2\text{S}$  in urine can only take place in acid and neutral urine and not in alkaline."

His experiment would go to prove that the property of developing  $\text{H}_2\text{S}$  was contained in the organic ferments of the urine which contained the  $\text{H}_2\text{S}$ , by reason of certain fungous substances peculiar to it.

Müller (Ueber Schwefelwasserstoff im Harn, *Berliner Klin. Wochenschr.*, 1887, xxiv, 405, 408, 436) verifies the above-mentioned experiment in every particular, and says that the addition of the very smallest quantity will suffice to cause the inoculated urine to become turbid. Müller says that not every urine can be so inoculated, especially those urines which are highly concentrated, as in infectious diseases, peritonitis, and ileus, which contain a large quantity of phenol and indigo-forming substances which are toxic to the micro-organisms.

Rosenheim and Gutzmann (Zur klinischen Würdigung und Genese der Schwefelwasserstoffausscheidung im Urin, *Deutsche med. Wochenschr.*, Leipsic, 1888, xiv, 181-184) present three cases. Their first case was that of a man, aged fifty-five years, who had a retro strictural abscess which communicated through a fistulous opening directly with the bladder. The patient died after a very short course of the disease without affording much opportunity for study. The post-mortem showed a direct communication of the bladder with an abscess cavity, which precluded the theory of gas diffusion in this case.

Their second case was a most interesting one, in a woman who entered the hospital suffering with pains in the left side under the arch of the ribs, and an irritable bladder, which led them to diagnosticate the case as vesical catarrh. On the fourth day the urine attracted attention by its penetrating odor of  $\text{H}_2\text{S}$ . From this case they succeeded in isolating little rods by culture, which, transplanted in other urine after the method of Ranke, produced  $\text{H}_2\text{S}$  in the second specimen of urine. The  $\text{H}_2\text{S}$  disappeared spontaneously after eight days, although the bladder catarrh continued. The patient left the hospital, but soon thereafter returned with the same complaint,

yet no  $\text{H}_2\text{S}$  could ever be discovered, while under the microscope there were a number of bacteria identical with those seen before. They do not mention whether the urine was albuminous or not.

Their third case occurred in a woman, aged seventeen years, who came into the hospital suffering with parametritis, inflammation of the vaginal mucous membrane, and pain on pressure in both inguinal regions. Both tubes and ovaries were thickened and surrounded by exudates. There was erosion of the portio vaginalis uteri. This to me seems most likely to have been a case which was septic and probably gonorrhoeal in origin. In the light of the present pathology of perimetric inflammations they were probably wrong in calling it a case of parametritis. The vast majority of cases such as is here described are cases of pyosalpinx with a plastic exudation round the ostia abdominalia binding together the fimbriae and ovaries. Very probably in the center of this "mass" or "exudate" there was a degenerating pus sac which formed the  $\text{H}_2\text{S}$ . Soon after the relief of the vaginal inflammation she was attacked with cystitis and had to be catheterized. The urine was acid, free of albumin, without any leucocytes, and turbid from masses of bacteria in it, and smelled of  $\text{H}_2\text{S}$ . Soon the urine became clear, the bacteria diminishing, but the odor of  $\text{H}_2\text{S}$  continuing. Soon thereafter the  $\text{H}_2\text{S}$  reaction disappeared. After eight days the bacteria again appeared in enormous numbers in the urine and the  $\text{H}_2\text{S}$  reaction again became distinct. Gradually the bacteria disappeared, and the  $\text{H}_2\text{S}$  reaction as well.

Here there is a distinct parallel between the presence of  $\text{H}_2\text{S}$  and the quantity of bacteria in the urine. They suggest that the bacilluria might have been caused by masses of bacteria which passed through the bladder walls from the neighboring inflammatory area.

From this urine they succeeded in isolating a very markedly characteristic species of bacillus which they considered as the cause of the hydrothionuria.

They convinced themselves by experimentation that this species of bacteria had the power to act reducingly upon the sulphur-containing substances in the urine, and in this above-mentioned case they consider it to have been the sole cause.

Müller (*loc. cit.*), making experiments at the same time and independently, showed that other micro-organisms were capable of developing  $\text{H}_2\text{S}$  in the same manner. I shall refer to these experiments more fully later on.

Rosenheim and Gutzmann further made experiments to show from what substances present in the urine  $\text{H}_2\text{S}$  was developed. They placed their bacteria in nutrient liquids, to which they added traces of albumin, but were never able to observe the formation of  $\text{H}_2\text{S}$ , while, on the other hand, the same micro-organisms placed in other urine free of albumin developed the  $\text{H}_2\text{S}$  reaction. The question then arose to them, "Which of the sulphur-containing substances was the source of the  $\text{H}_2\text{S}$ ?" According to Neubauer and Vogel (*Anltg. zur Analyse d. Harns*, ii. Auflage, 1856), whom they cite, the source of the  $\text{H}_2\text{S}$  would be in the sulphates, which form  $\text{H}_2\text{S}$  in the presence of moist organic substances at a moderate temperature. They quote Pfeffer as

saying that with the presence of sulphates certain fungi reduce these sulphates to  $\text{H}_2\text{S}$ . They support this by the following experiment: Normal fresh urine was freed from sulphates and then inoculated from urine which contained  $\text{H}_2\text{S}$ . Not a trace of  $\text{H}_2\text{S}$  was developed in it. Müller (*loc. cit.*), however, did succeed in developing  $\text{H}_2\text{S}$  in urine freed from sulphates by transplantation of bacteria.

Rosenheim and Gutzmann believe that the  $\text{H}_2\text{S}$ -producing sulphur belongs to a class of sulphur compounds normally existing in urine, and they say that very possibly it may be hyposulphurous acid, which is peculiarly apt to develop  $\text{H}_2\text{S}$  with facility.

Friedrich Müller (Ueber Schwefelwasserstoff im Harn, *Berl. klin. Wochenschr.*, 1887, xxiv, 405, 408 u. 436) mentions a case which occurred in a servant girl, aged twenty-nine years, who suffered with phthisis pulmonalis. The urine sediment contained numerous leucocytes, bladder epithelium, and crystals of triple phosphate, and it gave a strong reaction of  $\text{H}_2\text{S}$ . The  $\text{H}_2\text{S}$  reaction was more pronounced when the urine remained for a long time in the bladder than when drawn by catheter soon after its secretion from the kidneys.

On post-mortem there was found a very small recto-vaginal fistula which had been there since the birth of her child six years previously. Fæces passed through this fistula and probably infected the bladder by passing up the urethra, thus causing a cystitis.

Müller found no  $\text{H}_2\text{S}$  in the urine of patients who had  $\text{H}_2\text{S}$  in the sputa or vomited matters, nor in patients who took sulphur baths and inhaled large quantities of  $\text{H}_2\text{S}$ , nor did he find it in cases of gastric ulcer and typhoid fever with perforation. He has never found it where there has been a pus sac adjacent to the bladder, nor even if that pus sac contained  $\text{H}_2\text{S}$  in large amount. In his experiments on animals he found that only by injecting lethal quantities of  $\text{H}_2\text{S}$ , or of sodium sulphate in solution, into the abdominal cavity, could he cause  $\text{H}_2\text{S}$  to appear in the urine. He does not believe that diffusion through the bladder walls often occurs, but that in every case in which the urine contains  $\text{H}_2\text{S}$  it has undergone decomposition, yet not every decomposed urine contains  $\text{H}_2\text{S}$ .

He further says that hydrothionuria is a very common phenomenon in all possible forms of cystitis, not only in the slight degree, as is so often found in females as a sequela of leucorrhæa, but also in the more serious diphtheritic diseases of the mucous membrane of the bladder.

He says some specimens of normal urine left exposed to the air, especially at a warm temperature, will develop  $\text{H}_2\text{S}$ , and from these specimens which do develop  $\text{H}_2\text{S}$  other urines can be inoculated. He found, out of many kinds of micro-organisms which develop in urine, two kinds which especially develop  $\text{H}_2\text{S}$ . One kind was an oval-shaped coccus,  $8\ \mu$  in diameter, which often forms diplococcus and liquefies gelatin quickly.

The other organism was larger, was round, did not liquefy gelatin, and formed  $\text{H}_2\text{S}$  very slowly.

He believes that other micro-organisms can form  $\text{H}_2\text{S}$ , but he only wants to prove that they do form it, and not what kinds form it. Albumin is not the cause, because

urine free of albumin and peptones can be inoculated and develop  $\text{H}_2\text{S}$ .

Müller concludes that hydrothionuria is in most cases a result of decomposition in urine caused by certain micro-organisms. The appearance of  $\text{H}_2\text{S}$  which has been absorbed from other parts of the body—e. g., intestines, kidneys, or from neighboring pus or gas collections—occurs but rarely, he thinks, and then only if the quantity of  $\text{H}_2\text{S}$  is so great that general toxic phenomena have resulted. This latter theory, he says, could only be accepted if the urine was examined immediately and no trace of decomposition found.

Sertoli (Sull' esistenza di uno speciale corpo solforato nell' orina, *Gazzet. med. ital. lomb.*, 1869, Ser. VI, ii, 197) found that with the addition of any mineral acid and heating to  $100^\circ\text{C}$ , any urine would give off  $\text{H}_2\text{S}$ .

Senator (*Berliner klin. Woch.*, 1868, p. 254) mentions a case of hydrothionuria where an error in diet caused a catarrh of the stomach and a general intoxication of the whole system by  $\text{H}_2\text{S}$  poisoning, with the evolution of large quantities of  $\text{H}_2\text{S}$  from the mouth, and it also appeared in the urine in such great quantities that it colored a visiting-card containing lead black.

J. Vogel (Neubauer and Vogel, *Anltg. zur Analyse d. Harns*, 2te Auflage, 1856) says that he had had an opportunity for a long time to observe hydrothionuria in a man who had paralysis and who had to be catheterized. The urine was faintly acid and pale yellow, with some sediment, and gave a strong reaction of  $\text{H}_2\text{S}$  with lead acetate.

Löbisch (*Harnanalyse*, 2te Auflage, S. 354) observed  $\text{H}_2\text{S}$  in the urine in a patient convalescing from typhoid fever. It had no trace of albumin.

C. A. Cameron (*Notes on Pathology of Urine*, 1880) had a case of hydrothionuria in a middle-aged man who suffered for two years with  $\text{H}_2\text{S}$  in his urine. I add also another peculiar case which he mentions of a young girl, who, though in good health, had  $\text{H}_2\text{S}$  eliminated through the perspiration after exercise. The urine examination was not mentioned.

Härtling (*Ueber das Vorkommen von Schwefelwasserstoff im Harn*, Svo, Berlin, 1886) presents a case of gangrene of the right lung and fecculent cystitis. The sputa contained  $\text{H}_2\text{S}$ . The urine was acid, with a specific gravity of 1.011 to 1.024. Albumin was present, as well as leucocytes, but there were no tube casts. Eventually  $\text{H}_2\text{S}$  appeared also in the urine, but, after an observation of a month and a half, the patient was discharged cured.

Eichhorst (*Pathologie u. Therapie*, vol. ii, p. 647) says that in certain diseased conditions  $\text{H}_2\text{S}$  appears in the urine, and that it can be known by its coloring a silver catheter black. He mentions no cases.

Heller (*Arch. f. phys. u. path. Chem. u. Mikrosk.*, 1844, p. 24) found  $\text{H}_2\text{S}$  in the urine of a tuberculous patient suffering from pneumonia. He said that it was decomposed urine.

L. Kolipinski (*Med. News*, Philadelphia, Feb. 6, 1892, vol. ix, No. 6, p. 154) had a case of hydrothionuria in a man, aged sixty-seven years, who was an inebriate and suffered with chronic gastritis. He had profuse incontinence of urine and an enlarged prostate gland.



On June 5, 1891, the urine examination showed "a red color; acid reaction; slight turbidity; no sediment; specific gravity, 1.018; no albumin, bile, or sugar. Lead-acetate paper gave the  $\text{H}_2\text{S}$  reaction."

The urine continued of this same composition for a month, and  $\text{H}_2\text{S}$  was always present. "At the end of the month the patient's condition grew worse. . . . There now appeared a new light to clear up the mystery of the  $\text{H}_2\text{S}$ . The patient began to complain of pains about the anus at the site of a former ischio-rectal abscess. There was found on the right side, around a small, circular cicatrix, a moderate degree of induration, extending forward to the sacral fold, slightly tender and fluctuating. A free incision gave exit to about an ounce of pus having a strong odor of  $\text{H}_2\text{S}$ . The abscess was thoroughly washed out and left clean and dry."

On the night of this day (July 4, 1891) the urine was drawn by catheter twelve hours after the abscess had been opened, and presented the following characteristics: "Color, red; acid reaction; specific gravity, 1.019; slightly turbid; opaque sediment; a trace of albumin; indican in excess; granular epithelium and blood-corpuscles.  $\text{H}_2\text{S}$  was still present."

$\text{H}_2\text{S}$  was not again found in the urine, though on the following day or so he had a severe diarrhœa, with offensive stools and undigested material, which showed the existence of gastro-intestinal indigestion. He died on the 13th of July.

The autopsy, which was confined to the abdominal cavity, showed a dilated stomach; cirrhotic kidneys, the right one containing several small cysts and calcareous infarctions. The liver was in a condition of fatty degeneration; the spleen was dark and friable, but not enlarged; the gall-bladder contained two small calculi; there was no fluid in the abdominal cavity. "The ischio-rectal abscess was thoroughly explored and found empty and granulating. The bladder was contracted, and there was no induration or inflammation in its neighborhood. . . . Here was an old ischio-rectal abscess (the residual variety of Pajet) for a long time manifesting itself only by the presence of a decomposition product in a natural secretion."

This case bears some similarity to my second case, in which there was a pelvic abscess with an offensive, feculent odor to the pus. In that case, as in the one mentioned by Dr. Kolipinski, no  $\text{H}_2\text{S}$  appeared in the urine after there was an opening established for the discharge of pus.

The bacterial origin of the  $\text{H}_2\text{S}$  in such cases as these seems doubtful.

Austin Flint (On the Elimination of  $\text{H}_2\text{S}$  artificially introduced into the Body, *Med. News*, Philadelphia, 1887, vol. li, p. 670-'73) made experiments to ascertain the value of the Bergeon treatment of pulmonary phthisis by  $\text{H}_2\text{S}$  gaseous enemata, the object being to have  $\text{H}_2\text{S}$  eliminated by the lungs and destroy the tubercle bacilli. He tried gaseous enemata of  $\text{H}_2\text{S}$  to see if it could be eliminated by the lungs; he never succeeded after the injections in detecting it in the breath of a human being, but did find it in the breath of a dog on one occasion. A piece of white filter paper, moistened with lead-acetate solution, was held

before the mouth for the detection of the gas. In the case of the dog the elimination only lasted for three minutes. He has repeatedly injected  $\text{H}_2\text{S}$  into the veins of dogs, and has always noted a prompt elimination by the lungs, but this lasted for only a few seconds after the injection was discontinued. He did not find  $\text{H}_2\text{S}$  in the urine of these dogs. Flint says: "It would appear from these observations that a certain quantity of  $\text{H}_2\text{S}$  introduced, even in saturated aqueous solution, may be destroyed in some way in the system without being eliminated as  $\text{H}_2\text{S}$ ."

Out of all the literature on the subject I have only been able to find these comparatively few cases. It is difficult to actually demonstrate the cause or causes, but we can arrive at pretty certain conclusions from the material presented. I believe that the condition of hydrothionuria exists much more frequently than it is recognized, especially in cases of feculent cystitis. Its diagnosis is of the utmost importance, when it does occur, in leading us to the therapeutic measures to be adopted. The condition, from whatever cause it originates, demands that the diagnosis be accurate, whether there are neighboring pus sacs, stagnant and decomposed feces, gastro-intestinal catarrh or perforations, or bacilluria.

The possibility of the diffusion of gases through animal membranes is recognized by all physiologists.

Müller (*loc. cit.*) does not happen to have found  $\text{H}_2\text{S}$  in the urine when there was rupture of the viscera with escape of  $\text{H}_2\text{S}$  into the abdominal cavity, nor where there were pus sacs adjacent to the bladder, nor could he cause it to appear in the urine of animals except by injecting lethal quantities of  $\text{H}_2\text{S}$  or sodium sulphate into the abdominal cavity. But the observations of others antagonize this; for instance, Senator's case, where there was general poisoning with  $\text{H}_2\text{S}$  resulting from an error in diet; my own case, No. II, where there was a pelvic abscess adjacent to the bladder; the case of Betz's, where a very thin diverticulum of the bladder pressed closely against the rectum, which was filled with stagnant feces and contained an unusual amount of  $\text{H}_2\text{S}$ ; the two cases of Emminghaus's, in the former of which there were numerous perforations of the alimentary canal, and in the latter abscesses in the small intestine, vermiform appendix, cæcum, and sigmoid flexure; and Kolipinski's case, in which there was an ischio-rectal abscess containing  $\text{H}_2\text{S}$ .

Charles B. Kelsey, in an article on abscesses round the rectum (*Therapeutic Gazette*, Philadelphia, vol. xvii, No. 1, Jan. 16, 1893), says that the pus in abscesses round the rectum often has a fecal odor from proximity without actual perforation. This is known to all surgeons.

I therefore consider that the diffusion of the gas from a neighboring pus sac, or from an intestine containing an unusual amount of  $\text{H}_2\text{S}$ , directly through the bladder walls, is one of the causes of hydrothionuria. I place little credence in Betz's second theory—"that  $\text{H}_2\text{S}$  appears in consequence of the resorption from the intestine into the blood and its subsequent elimination through the kidneys."

Müller and Austin Flint (*loc. cit.*) have both shown that  $\text{H}_2\text{S}$  can be made to appear in the urine only by injecting lethal quantities either into the abdominal cavity or veins.

Husband (*Forensic Medicine*, fourth edition, page 379) says: "When the gas is but slightly diluted the person becomes suddenly weak and insensible and rapidly dies. The post-mortem appearances are fluidity and blackness of the blood, loss of muscular contractility, and a tendency to rapid putrefaction. The bronchial tubes are reddened, and the internal vascular organs appear almost black."

In order to be absorbed into the blood and subsequently eliminated by the kidneys, the  $H_2S$  would have to be present in such enormous amount as to cause speedy collapse and death—a condition which was present in none of the cases.

The experiments of Ranke, made also by Müller and Rosenheim and Gutzmann, prove conclusively the *bacterial origin of a large class of cases of hydrothionuria*. Ranke proved that a few drops of urine containing  $H_2S$  on being added to other normal urine caused  $H_2S$  to develop in the latter by a process of fermentation. Rosenheim and Gutzmann (*loc. cit.*) discovered a bacillus in the urine which developed  $H_2S$  in other urine, and Müller (*loc. cit.*) discovered two forms, one an oval-shaped coccus  $8\ \mu$  in diameter, and the other which was a larger organism.

In Cases I and III of my own series the urine swarmed with vibriones, and, when these were killed by irrigating the bladder with a solution of potassium permanganate, the  $H_2S$  soon disappeared.

Müller found that some specimens of normal urine left exposed to the air, especially at a warm temperature, developed  $H_2S$ , and from these specimens which did develop  $H_2S$  other urines could be inoculated. Just what substances the bacteria split up to form  $H_2S$  it is difficult to say. Extreme albuminuria in eclamptic cases was present in two of my cases, and albumin was present in some of the other cases also. When we consider the large proportion of sulphur contained in albumin, it is not hard to understand how it may be one of the substances present in urine out of which  $H_2S$  may be formed. In the two cases referred to above, where there was a dense precipitate of albumin on testing it and an enormous number of active vibriones, I conceived the idea that the process was analogous to the formation of  $H_2S$  during the putrefaction of an egg. But Rosenheim and Gutzmann have positively shown that the presence of albumin is not necessary, and that other substances present in the urine can produce it. These are probably the sulphates; but even this supposition is rendered difficult since Rosenheim and Gutzmann succeeded in developing  $H_2S$  in urine which was previously freed from sulphates. Müller, however, could not cause it to develop in urine freed from sulphates.

I believe that *any of the sulphur-containing substances present in the urine may at times be the source of the  $H_2S$* .

The clinical significance of hydrothionuria varies according to the circumstances under which its development occurs. In some cases we must reduce the clinical significance of  $H_2S$  in the urine to a *bacilluria*, in others to a *diffusion of the gas* from a neighboring pus sac or bowel containing a large amount of  $H_2S$ . The decomposition of the urine occurs after its secretion either in the bladder, ureters, or pelves of the kidneys, on account of the action of

bacteria. It is not essential to find any particular kind of micro-organism to explain it, but simply to accept as proved that various kinds have been found to split up the sulphur-containing substances in acid urine.

Hartling (*loc. cit.*) says that every urine remaining exposed to the air eventually develops  $H_2S$ , so this precludes the idea of assigning the cause to any particular kind of micro-organism.

The therapeutic measures to be adopted will depend upon the cause. If the intestinal canal is filled with stagnating gases and fæces, we should freely purge the patient and administer intestinal antiseptic drugs. If there are neighboring pus sacs—for instance, pyosalpinx, pelvic abscesses, ischio-rectal abscesses, or tubercular ulcerations of the bowel, bladder, or internal organs of generation—we should evacuate the pus and drain according to surgical methods.

If the condition is associated with a cystitis and bacilluria, as will in most instances be the case, we should wash out the bladder with antiseptic solutions of permanganate of potassium or peroxide of hydrogen or other substances suitable for bladder irrigation.

## THE TREATMENT OF SPRAINED ANKLE.

By P. C. BARKER, M.D.

MORRISTOWN, N. J.

AMONG the minor surgical ailments that we are called upon to treat, sprains about the ankle joint are perhaps more frequently encountered than any others. As they are generally treated, they are also more painful and more lasting than any other minor ailments. Therefore it will not be amiss or unprofitable to reconsider the whole question of sprained ankle, so that it may be ascertained if there is not a better way to treat it than by the method generally pursued—namely, rest and evaporating lotions in the early stage, and a plaster or other immovable apparatus in the later treatment. Let us first recall what takes place when the injury is received. Generally it is the outer side of the ankle that is injured by the weight of the body being suddenly and more or less violently thrown upon the foot while the latter is turned in. The ligaments and other fibrous structures are overstretched and sometimes lacerated. There is an effusion of plastic serum into the surrounding tissues, followed by swelling, heat, and pain. This traumatic œdema, added to the injury to the fibrous structures and the nerve filaments, produces extreme hypersensitiveness. The victim is not only unable to bear his weight upon the foot, but he is also at the outset intolerant of the most gentle manipulation of it. Rest, cooling lotions, etc., serve to relieve the pain and promote comfort, but they neither reduce the swelling to any extent nor do they relieve the tenderness. Indeed, as time goes on, there seems to be a tendency to new cell formation in the lymph effused, so that in severe cases months elapse before any weight can be borne upon the injured foot, and the swelling only subsides as use is gradually resumed, while tenderness is the last to yield.

That the injury to the structures around the ankle joint when sprained is as above stated, and the treatment thereof, as mentioned above, is in accordance with the scanty references to the subject in text-books and treatises on surgery, will not be denied, and therefore it is not necessary to extend the length of this article by any quotations from or even references to authorities. The treatment mentioned is the usual and prevalent treatment. Is it rational treatment? Let us recapitulate. The ligaments and fibrous tissue around the joint are overstretched or lacerated, and there is an effusion of serum into the surrounding tissues. These are the main factors. Something should be done to arrest the swelling and at the same time relieve the pain. Hot water applied continuously for several hours best meets these indications. Then a carefully applied narrow roller bandage (preferably of flannel), covering the entire foot and ankle, will not only tend to prevent the further effusion of serum, but it will encourage the absorption of that already effused, besides supporting the overstretched or torn ligamentous or other fibrous structures involved. At least once daily the bandage should be removed and deep finger massage practiced wherever there is tenderness. This proceeding stimulates the absorbents and gradually relieves the tenderness. The first few times it is practiced it hurts infernally in severe cases, but each repetition hurts less and less, so that after a few times the patient can himself rub the tender spots through the bandage and so expedite his own recovery. From the very outset the patient should be required to use the foot as much as he can without great pain. This improves the circulation in the foot and is therefore of service. If these details are carefully and thoroughly carried out, the average uncomplicated even if severely sprained ankle can be entirely cured in three or four days.

Many years ago (about 1864) the writer sprained his ankle. The swelling was excessive and the tenderness so great that the foot could not be allowed to rest upon the floor. Previous reflection had satisfied him that the usual treatment of this injury was not based upon correct principles, and, having a favorable case of his own to experiment with, he determined to employ the treatment under consideration. The foot and ankle were first placed under a stream of cold water for half an hour, then rubbed vigorously and bandaged. Several rubbings were necessary before this part of the treatment could be self-inflicted, the pain was so great. For one day it was necessary to use a crutch, the next day a cane, and on the third day an ordinary boot was worn over a thin bandage. The recovery was practically complete. It was subsequently discovered that hot water was not only more agreeable but more efficient than cold water in arresting the swelling and relieving the pain. Since that time the writer has treated all his cases of sprained ankle in this manner, and if the treatment has also been carried out faithfully by the patient, there have been no exceptions to a like speedy recovery.

Cases of considerable duration—a week or two weeks—that have previously been treated by the rest method, do not require the hot water, but in other respects they should be treated like a recent case. Many such have fallen under the writer's care. The improvement will not be so

rapid as in a recent case, but it will be satisfactory. Last summer a young lady came home from college with a badly sprained ankle that had been in a plaster splint for nearly four weeks. The swelling was still great, and it was very firm and hard, as well as very tender, so that the foot could not be allowed to even rest on the floor when the splint was removed. It was thoroughly rubbed, twisted gently in every direction, and then carefully and snugly bandaged with a narrow flannel bandage, so as to cover the entire foot. After the bandage was applied she could bear a little—a very little—weight upon the foot. She was shown how and where to rub the foot and ankle herself, and directed to do it often, meantime using it as much as possible. The thorough rubbing was done by myself but once daily. In a week she could walk without crutch or cane, but the swelling had not subsided, and only a large slipper could be got on. Before the second week elapsed, however, the young lady walked as well as ever.

*Conclusion.*—The treatment of sprained ankle consists in—

1. The prolonged use of hot water.
2. Careful finger-tip massage.
3. Bandaging with flannel bandages (of entire foot).
4. Use.

## HOW TO ARREST A CARBUNCLE.

By P. C. BARKER, M.D.

MOORESTOWN, N. J.

ONE of the striking characteristics of medical magazine contributions of the present day is the tendency to elaborate—to pad. The result is that many readers have gradually fallen into the habit of turning over the leaves of their journals, noting a sentence, or an idea here and there, without, perhaps, really reading a single article. The writer desires to call the attention of the readers of the *Journal* to what he believes to be an entirely new treatment of carbuncle; and, with the above criticism in view, he will—without discussing the etiology of the disease, or the process of reasoning that led to the adoption of the treatment—proceed at once to describe it in detail. Take a large hypodermic syringe fitted with a small needle. Fill the syringe with a 1-to-500 solution of mercuric chloride (bichloride) and insert the needle into one of the openings of the carbuncle as far as it will readily go. Inject the solution so as to thoroughly wash out the little cavity immediately beneath the opening. Then thrust the needle into the surrounding induration from the little cavity and force a little of the solution into these tissues. Of course not much can be thus introduced. Repeat this proceeding until every opening or impending opening has been washed out, and its corresponding periphery has been thus injected. With the exception of the injection into the infiltration this is entirely a painless proceeding, and the patient experiences a decided sense of relief after even the first cleansing. Dress the carbuncle with some weak antiseptic ointment as often as may be necessary, and repeat the injections (reduced to 1 to 1,000) daily until the slough has separated. No matter whether there are two or three small openings,



or a dozen, when treatment is commenced—whether the induration is an inch, or two or three inches in diameter—there will be no extension of the resulting slough after the first injection if it be thoroughly done. If this treatment is commenced at an early period while there are only two or three openings and but very little surrounding induration, the carbuncle will be entirely healed in a very few days. The writer has repeatedly employed this treatment, and success has invariably resulted.

For boils, carbolic acid and glycerin yield equally good results. Cases in illustration might be given, but, as they would add nothing to the practical value of the contribution, they are withheld.

### SOME REMARKS UPON THE VALUE OF PERITOMY.

By JOHN DUNN, M. D.,  
RICHMOND, VA.

Among the most annoying cases that present themselves at an eye clinic are what may be termed acute opacities of the cornea. The patient comes into the room with one eye—and often the other eye sympathizes—closed; there is excessive lachrymation. You tell him to open the eye, and his endeavors to do so are useless, or result only in closing the lids more tightly; the photophobia is so great that when you attempt to separate the lids with the fingers the eyeball turns in varying directions, so as always to keep the cornea concealed from the light, beneath the lid; and the result is that to obtain any satisfactory view of the cornea a strong solution of cocaine has to be resorted to. When we finally succeed in obtaining a look at the eyeball, we find the conjunctiva greatly irritated, but not necessarily inflamed; little or no discharge other than lacrymal; there is no open ulceration of the cornea—as we expected to find—but a circumscribed opacity which from its appearance may have existed an indefinite length of time. If we examine this opacity more closely we find running to it from the conjunctiva along the corneal margin one or several small blood-vessels, sometimes so numerous as to suggest the idea of a pterygium, although we do not find the loose membrane that characterizes the pterygium. Most frequently, but not always, we find the conjunctiva at the point of origin of these vessels showing signs of localized irritation, and this suggests the idea of recent trouble; in other cases—and this I have noticed in negroes—these signs of localized irritation are wanting. If we examine the opacity of the cornea, we find that it often presents to the naked eye no appearance different from the usual old opacities which give rise to no such acute symptoms. Occasionally we find that the opacity is slightly raised above the surface of the surrounding cornea; and in one case I found that the covering of the opacity came easily away when it was touched with a probe, leaving beneath it an open ulceration. These acute opacities result most frequently from phlyctenular ulcerations of the cornea, but sometimes from neglected, seemingly slight abrasions of the cornea, as among stonecutters, etc. Under these circumstances the photophobia, the lachrymation, etc.,

of course, show that Nature is still at work at the process of repair, and, if left to themselves, these symptoms will in the course of time disappear. Nature is in these cases, however, for the most part very patient and takes her own sweet time; nor is her *non agit per saltum* appreciated by a class of people who have to work for a living. The question is, what to do. How can we shorten the process of healing? I have been able to find no substance which, when applied directly to the cornea or conjunctiva, either in solution or as a salve, has, so far as I can see, any beneficial effect. Nor, on consideration of the problem, do I see that there are indications for any local application. In my experience with these cases yellow oxide of mercury or calomel only aggravate the irritation of the conjunctiva; aristol and iodoform have no appreciable effect for the better; the astringents are useless; nor have I been able to derive any benefit from the use of atropine. Cocaine salve is useful only as a temporary sedative, but, *faute de mieux*, is permissible as a placebo. The cases which I have called acute leucomata represent a condition which sometimes results from the neglect of proper treatment of ulcerations of the cornea from whatever cause—a condition which eventually passes into chronic nebula or leucoma under any treatment, but often requiring weeks or even months to reach this passive state.

The history of the condition under consideration is somewhat as follows: Neglected, more or less extensive ulceration, implicating the cornea somewhere in its outer third, but at some slight distance from the scleral margin; the ulceration is generally superficial. As time goes on the process of repair sets in; vessels pass from the scleral edge to the ulceration; the ulcer becomes covered over with epithelium before the cells and new tissue that fill in the space destroyed by the ulceration have assumed their final non-irritable condition; the blood-vessels continue to grow in size or number until they bring to the seat of war more blood cells than the process of repair needs, and thus it happens that there is such an accumulation of cells as to result in their own partial destruction; and that the process of repair is, to some extent, interfered with by the very agents that are necessary for its accomplishment, and, of course, the irritation about the former seat of ulceration is kept up. I am inclined to think that the subjects in whom this condition occurs are almost always "lymphatics." It is in these cases that a peritomy may be done with excellent results so far as causing the disappearance of the photophobia and lachrymation are concerned. Whether this operation has any effect in lessening the density of the opacity resulting from the ulceration I am unable to say. Peritomy for pannus is done commonly enough, and the condition here mentioned is a form of pannus; and no originality is claimed for the application of this little operation in these cases of acute leucoma. The results are, however, sufficiently gratifying for it to have special attention. The operation is done as follows: Cocaine is used; the lids are held apart; the part of the conjunctiva which furnishes the vessels to the leucoma is seized and lifted with a pair of small forceps and then incised for an extent a little greater than that which contains the enlarged vessels. The

incision is made about 2 mm. from the scleral edge and follows the curve of the cornea. Cool applications are then ordered for a day or two. It will sometimes be found that the pain about the eye will, as the result of this operation, be increased for twenty-four hours. In three or four days, however, the improvement in the condition of the eye will be noticeable. Two cases, by way of illustration, may not be out of place.

CASE I.—April 4, 1891. James K., stonecutter, aged thirty, was struck in the eye six weeks ago with a piece of granite, since which time his eye has been the source of unceasing annoyance. Extreme photophobia; lachrymation. Examination of the eye shows following condition:

There were three small opacities, two of them probably the result of old injuries to the cornea. The third was larger than the other two. Into the third ran several large vessels. This third ulcer, although in appearance resembling the other two, was very thinly covered with epithelium, inasmuch as a slight pressure of the probe was sufficient to denude it. The vessels supplying the leucoma were unusually large. Local applications proving to be of no effect after faithful trial, a peritomy was done. In a few days all signs of irritation disappeared. The leucoma, however, remained, gradually becoming less dense as time went on.

CASE II.—Negro, aged eighteen. Numerous phlyctenes of the cornea, one large one of which in the right eye has perforated the cornea, causing prolapse of the iris, which had to be cut off. In left eye, several more or less dense leucomata. Treatment extended over a period of six months. When at last right eye had attained a condition of rest—*i. e.*, when there was no visible irritative process at work, and when new phlyctenes in left eye had ceased appearing and the old ones had healed superficially—it was found that the negro could not open his eyes to the light. Nor did the usual salvia treatment have seemingly any effect in lessening the photophobia and lachrymation. Careful examination of the cornea of left eye showed that there were two large leucomata, one above and one below the pupil, into which passed a number of very minute vessels. An upper peritomy was done, and afterward a lower. In a few days the lachrymation ceased and so did the photophobia, except that caused by the dazzling, the result of the partial clouding of the cornea.

Other cases might be cited, but these are sufficient to illustrate the above remarks. It may be added that sometimes after the section the conjunctival wound gapes considerably. This will heal without trouble.

## VARICOCELE.

WITH A REPORT OF NINETEEN RADICAL OPERATIONS,  
AND THE DIFFERENT WAYS IN WHICH THEY WERE DONE.\*

By B. MERRILL RICKETTS, M.D.,  
CINCINNATI, OHIO.

VARICOSITY of the spermatic vein, especially the left one, is quite a common occurrence. There are many reasons assigned as being the cause, but I think the most plausible one is its anatomical relation to the rectum and the influence of fecal masses pressing upon it. These varicose veins increase both in number and size until they

become greatly distended and hold great quantities of venous blood when their possessor stands erect. There is a sensation of weight, producing great discomfort at times and occasionally sharp lacerating pains. The scrotum becomes redundant and in a few cases extends almost to the knee. I myself have seen three that reached to the lower third of the thigh. In cases of long standing the pressure upon the veins is sufficient to produce atrophy of the testicle, thus necessarily destroying its usefulness, so that the operation is not always the cause of sterility.

From time immemorial various operations have been resorted to for the purpose of destroying these veins and preventing their return. One of the first was the subcutaneous operation, which is now performed but by a few surgeons. Among this number is Dr. Edward L. Keyes, of New York, who seems to be satisfied with the results. He believes it the ideal operation, claiming for it less suffering, less loss of time, with greater dispatch, and without danger to either the testicle or the patient. I think I am safe in saying that the principal reason for the operation going into disrepute is the great danger of the spermatic artery being destroyed, for surely an operator can not follow the point of the needle with his eye. It must necessarily be done with the sense of touch. Then the injections of quercus alba, carbolic acid, tincture of iodine, perchloride of iron, and permanganate of potassium have all been thoroughly tried and found wanting. They were injected into the veins for the purpose of producing an acute inflammatory process which would destroy their walls. I do not believe that two per cent. of those operated upon ever experienced radical results. These injections are attended with great risks of abscesses, phlebitis, and constitutional disturbances of a dangerous nature; then the remaining ninety-eight per cent. of all the patients operated upon experience greater trouble after these injections than before. I have recently operated upon four of these subjects who had been treated with the injections of iodine and quercus alba. In each case there were hard masses of veins which had not been absorbed and around which the smaller ones had become greatly distended, so that I am thoroughly convinced of the fallacy of this operation.

Within the last ten years the radical operation, which consists of the removal of these veins *in toto*, has been adopted. To my mind this has been the most rational means of destroying varicosity of the spermatic veins; consequently it was not until this radical operation of ligating and cutting *en masse* was introduced that I was willing to adopt operative procedures for the relief of varicocele.

Of the nineteen operations that I have done there has been the loss of but one testicle. Here the varicosity was extensive and the testicle of not more than one third the size of its mate. The operation resorted to was double ligation of the mass at points about half an inch distant, its removal, and bringing the stumps together with silk. This was done under the influence of chloroform and the recovery was uninterrupted, except for a slight rise of temperature, which lasted for three days.

I have done the operation in the following ways:

1. Single ligation without cutting.

\* Read before the Cincinnati Academy of Medicine.

2. Double ligature without cutting.
3. Double ligature with one incision between.
4. Double ligature with the removal of the intervening mass.
5. Ligating the veins separately.
6. Clamping the veins and applying the cautery.
7. Median amputation of the scrotum (lower portion).
8. Lateral amputation of the scrotum.

So that I feel that I am prepared to choose from these operations the one most desirable to do and the one most beneficial and with least loss of time to the patient. I have used both silk and catgut ligatures, and am now free to say that I prefer the latter to the former, although I have occasionally observed slight suppuration with the catgut. I have not yet been able to do the operation with silk ligatures in such a way that they would not sooner or later work their way out; so that I would not do the operation with silk if the catgut could be had. In three cases I have had the temperature go as high as  $102^{\circ}$  F. and range from that to  $101^{\circ}$  for three or four days and then gradually and rapidly subside. There have not yet been any unpleasant complications arising from the operation, although in three or four cases it was three months before the silk ligatures escaped. I have thought within the last year that the ideal operation would be to clamp and cauterize the varicosities as is done in hemorrhoids about the anus, and upon the suggestion of Dr. F. W. Langdon this has been done; but I find after doing the operation that it is thus far unsatisfactory. I shall, however, resort to it again and see if the fault does not lie in myself more than in the means adopted.

The operation that I have now decided upon and would most earnestly advocate is to inject a solution of cocaine in the field of incision, cut down upon the veins, apply two catgut ligatures half an inch distant, divide with a knife, and bring the stumps together with a single catgut suture. The parts are then returned and the external wound closed by continuous catgut or silk and dressed with boric acid. I do not now find it necessary to administer an anæsthetic of any kind to produce unconsciousness, having found that injections of cocaine will enable a painless operation to be done.

"THE TRIBUNE," 127 BROADWAY.

**The late Dr. Edwin T. Doubleday.**—The Hospital Graduates' Club thus records its sense of bereavement:

Death has, for a second time, invaded the ranks of the Hospital Graduates' Club, and we desire to put on record a tribute to our late associate, Edwin T. Doubleday, M. D. As a founder, trustee, and active member, the club owes much to him for its existence, perpetuation, and success. As a comrade we found in him a genial, whole-souled companion, and as such mourn his loss. As a physician we had in him an example of professional probity, skill, and kindness worthy of all emulation. He was generous, forbearing, hospitable, full of the manly attributes of public and the gentle qualities of private life. We desire in this official way to express our sorrow, our appreciation of his character, and to extend our heartfelt sympathy to his family in its bereavement.

NELSON H. HENRY,  
President.

[Signed.]

JONATHAN WRIGHT,  
CHARLES A. POWERS,  
R. W. AMIDON, } Secretary.

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THE SIGAULTIAN OPERATION.

In a recent number of the *Journal de médecine, de chirurgie et de pharmacologie*, of Brussels, there is an interesting paper on antiseptic symphysiotomy in pelvic contractions, by Dr. V. Cocq, who states that this operation is only legitimate when it is performed with antiseptic procedures, for its real success is dependent on the rigorous application of Listerian methods.

It is a procedure that may be carried out by any practitioner with the simple instruments of an ordinary armamentarium, and every physician should be as familiar with its details as an operation of urgency as with those of kelotomy or those of tracheotomy. By means of symphysiotomy a separation of the pubic bones for six centimetres may be obtained without danger. Such a separation would correspond to a lengthening of the antero-posterior diameter of from twenty to twenty-two millimetres, and to one of the sacro-pubic line of from thirteen to fifteen millimetres. There is also a virtual diminution of from six to eight millimetres in the biparietal diameter of the fetus in consequence of the engagement of one of the parietal eminences between the separated pubic bones. The operation should not be performed at term on a woman having a pelvis with a smaller diameter than six centimetres and seven tenths, because the gain of twenty-two millimetres in a pelvis of that size would afford an antero-posterior diameter of only eight centimetres and nine tenths. As the biparietal diameter (nine centimetres and a half) of an infant at term may be diminished six millimetres in consequence of compression of the head, it is seen that an infant having a head of this size may, by means of symphysiotomy, be enabled to pass through the pelvic strait.

The operation is favorable to the child because recent statistics show an insignificant fetal mortality, and it is favorable to the mother because these statistics show neither death nor accident to her. The sequences of symphysiotomy, from the standpoints of consolidation of the symphysis, of capability of standing erect, and of the power of walking, are excellent.

At term, after fruitless attempts to apply the forceps or to practice version, symphysiotomy should always be practiced if the child is alive and the superior conjugate diameter is greater than six centimetres and seven tenths. Before term the operation may be performed where the diameter is less than this, but greater than four centimetres and a half. It therefore renders artificial premature accouchement practicable where formerly abortion was considered the sole resource or where it is not desirable to have recourse to graver procedures at the termination of pregnancy. Associated with artificial premature accouchement, symphysiotomy permits of intervention at a much later



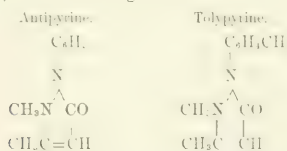
period in pregnancy, that is to say, at a time when the infant has more vital resistance.

Experience shows that embryotomy is only legitimate, in the case of a living fœtus, when the physician is consulted by a pregnant woman who has about completed her term and in whom the conjugate diameter is less than six centimetres and seven tenths. The Cæsarean section is only permissible at term and in cases of pelvic contraction in which the conjugate diameter is less than four centimetres—granting, of course, that the mother does not demand embryotomy.

In oblique oval pelvis in which the ankylosed portion of the pelvis is so narrow as to make version inefficacious, division at the ischio-pubic articulation may be substituted with advantage for pubic symphysiotomy.

#### TOLYPYRINE.

This name—utterly unwarrantable on any other ground than that of establishing kinship with antipyrine for the compound it designates—has been given by Dr. Thoms to the synthetic product paratolyldimethylpyrazolone, recommended as a substitute for antipyrine, from which, as regards chemical constitution, it is thus distinguished:



Tolypyrine, then, differs from antipyrine by the substitution of the univalent methyl-group molecule CH<sub>3</sub> for one of the atoms of hydrogen in the phenyl compound C<sub>6</sub>H<sub>5</sub>. According to Dr. P. Guttman's account of his study of tolpyrine, published in the *Berliner klinische Wochenschrift*, 1893, No. 11, and epitomized in the *Therapeutische Blätter* (a supplement to the *Internationale klinische Rundschau*) for April 30, 1893, the drug is better than its name. It forms colorless crystals, melting between 136° and 137° C., of a very bitter taste, soluble in ten parts of water, readily soluble in alcohol, and almost insoluble in ether. In aqueous solution it shows, like antipyrine, an intense red coloration on the addition of iron chloride and a green coloration on the addition of nitrous acid. If a bit of it is heated with two cubic centimetres of twenty-five-per-cent. nitric acid, the liquid is colored wine-red, and by the addition of ammonia this color is changed to a clear yellow.

After preliminary experiments on rabbits, Dr. Guttman began his observations of the remedial action of tolpyrine, and first as a hypnotic. He administered it in six cases of typhoid fever, five cases of pneumonia, two cases each of scarlet fever, phthisis, and facial erysipelas, and one case each of septicæmia, otitis media, and gangrene of the scrotum with excessive fever. In almost all instances a drachm of the drug was given daily, in fifteen-grain doses administered at intervals of an hour. The temperature began to fall soon after the first dose had been taken, and the reduction continued for a number

of hours. Like almost every energetic antipyretic, tolpyrine produced copious perspiration, especially of the face, and this sometimes persisted as long as the temperature remained reduced. Associated with the fall of temperature there was a reduction of the rapidity of the pulse. In acute articular rheumatism of moderate severity a drachm daily, in fifteen-grain doses every three hours, produced amelioration within twenty-four hours or a little longer; but in severe cases it was no more efficient than antipyrine or salicylic acid.

Tolpyrine seems not to give rise to unpleasant results when used in the doses mentioned, and its continued employment appears to be well borne—in an obstinate case of sciatica the patient took four ounces and a half in the course of thirty-eight days, without any untoward effects whatever. As an anodyne, especially in headache, tolpyrine seems to have about the same efficiency as antipyrine. The drug is eliminated in the urine.

#### MINOR PARAGRAPHS.

##### BACILLI IN BUTTER.

It is well known that milk is extremely hospitable toward certain groups of micro-organisms. It has lately been shown, says the *Lancet*, that butter plays a similar rôle. According to some comparative researches, the genuine article made from cow's milk is generally far richer in bacilli than oleomargarine is. A drachm taken from the middle part of a pot of butter has been found to contain nearly 1,500,000 of the bacilli, and a like amount from the outside to contain 47,000,000. In fact, in some cases "it is tolerably certain that the number of organisms swallowed with a good piece of bread and butter may exceed that of the entire human population of Europe." Butter that has been kept for a time in a refrigerating box shows a decidedly smaller number, and the same is true of specimens that have been freely sprinkled with salt. In artificial butter the number of bacilli is on an average a third of that found in the real article; and, whereas in the former the minimum number found is about 750,000 to the drachm, in genuine butter the smallest number seen is fully 2,000,000. Two varieties of these bacilli have been isolated and cultivated, but they have not been identified with any of the known disease-producers. They are so generally if not uniformly present in butter that the presumption is that they either are not pathogenic or are readily destroyed in the early processes of digestion.

##### A TRAINING SCHOOL FOR INVALIDS' ATTENDANTS.

A NEW form of training has been undertaken by the Massachusetts Emergency and Hygienic Association—namely, the opening of a new occupation for young women who desire to become attendants upon chronic invalids, aged persons, convalescents, and sickly children. There are many families where it is inexpedient or impracticable for the relatively well members to wait upon those other members who may be feeble or sick. The trained nurse's attentions are a step above what is required in such cases and are, perhaps, too high-priced for a long-continued service, as in the case of a confirmed invalid. It is at the time when the trained nurse takes her departure that the trained attendant may often do much good. And some discipline and instruction will make the latter fit to take up the work of the former. The attendant should be taught about

the means and methods of ventilation, foods for the sick, the laying of dust, the hygiene of the bedroom, and the bathing of children and weak persons. The school in Boston has inaugurated such training with a course of thirty lessons, at a cost of three dollars. Examinations creditably passed entitle the pupils to a certificate or diploma. A full exhibit is proposed to be made at the World's Fair.

#### THE OPALINE TONGUE OF INFLUENZA.

According to the *Lancet's* Paris correspondent, M. Faisans maintained at a recent meeting of the *Société médicale des hôpitaux* that an examination of the tongue was enough to settle the question, often a puzzling one, of whether or not a case was one of influenza. The tongue in *la grippe* was described by him as of normal size and form; always moist, unless some inflammatory complication was present or imminent; smooth and even, the papillæ not prominent. "But the chief characteristic feature of the tongue," the account goes on to say, "is its color—it is the *opaline tongue*. This opaline coloration is sometimes uniformly spread over the whole lingual surface; in other instances the middle and the base are opaline, the edges and tip being covered with distinct rounded opaline or bright-red spots. This pathognomonic appearance may be often noted from the first onset of the disease, and may persist for a more or less prolonged period after recovery. Purgatives and emetics do not modify it in any degree."

#### MCGILL UNIVERSITY, MONTREAL.

The chair of pathology and public hygiene in the medical school has recently been endowed by a gift of \$100,000. The donor, who is also the chancellor of the university, is Sir Donald A. Smith. About ten years ago he inaugurated an era of benevolence in favor of medical teaching in Canada by making a semi-centenary donation of \$50,000. Other funds have flowed into the same coffers during the last year, of which \$80,000, from Dr. Molson, has been set apart for a building fund for the chemical and pathological departments. Dr. Adams, formerly of the University of Cambridge, has been inducted into the chair of pathology and hygiene.

#### THE KINGS COUNTY MEDICAL ASSOCIATION.

At the regular June meeting, held on the 13th inst., Dr. Rochester in the chair, Dr. Rushmore exhibited a case of resection of the head of the femur resulting in the establishment of a strong (false) joint possessing great freedom of motion as well as strength. Dr. George G. Hopkins read a paper on The Ligature, embodying a portion of his original studies regarding the relative merits of the different surgical expedients for staying arterial hæmorrhage. The discussion of the subject by Dr. Rushmore, Dr. Sullivan, Dr. Rochester, and others followed. The society then adjourned until October.

#### A PROPOSED BUILDING FOR THE BROOKLYN MEDICAL SOCIETIES.

It is reported that a citizen of Brooklyn has offered to bear half the expense of erecting a building, to cost \$100,000, for the various medical societies of that city, provided the societies will devote an equal amount to the undertaking; and that accordingly several of the societies are considering what measures they can take to accomplish the purpose.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 13, 1893:

DISEASES.	Week ending June 6.		Week ending June 13.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	13	2	8	8
Typhoid fever.....	15	7	9	4
Scarlet fever.....	156	17	143	8
Cerebro-spinal meningitis.....	23	16	19	8
Measles.....	146	17	194	7
Diphtheria.....	149	40	112	42
Small-pox.....	12	1	10	0

The Medical Association of Central New York held its twenty-sixth annual meeting in Rochester on Friday, the 16th inst. Besides the president's address, by Dr. Louis A. Weigel, of Rochester, the programme included the following:

Observations of a Country Practitioner relative to Quinine, by Dr. A. A. Young, of Newark; Equisetum Hiemale as a Diuretic, by Dr. A. L. Beahan, of Canandaigua; The Use of Menthol Spray through the Stomach tube, by Dr. A. L. Benedict, of Buffalo; Remarks on the Positive Value of the Stomach-tube in the Diagnosis of Gastric and Abdominal Diseases, by Dr. H. L. Elsner, of Syracuse; Dysentery complicated by Puerperal Hemorrhagia—Report of Two Cases, by Dr. J. H. Jewett, of Canandaigua; How shall we Treat Scarlet Fever? by Dr. F. W. Bartlett, of Buffalo; The Simulation of Diseased States for the Purpose of Gain, by Dr. A. L. Hall, of Fair Haven; Multiple Neuritis, by Dr. Floyd S. Crego, of Buffalo; What is Nervousness? by Dr. William C. Krauss, of Buffalo; Cerebellar Tumor with Secondary Hydrocephalus in a Child of Five Years, by Dr. Edward B. Angell, of Rochester; Neglected Injuries of the Perineum and the Choice of Method for their Repair, by Dr. S. L. Elsner, of Rochester; Martin's Operation for Restoration of the Perineum, by Dr. William S. Cheesman, of Auburn; The Necessity of the Early Diagnosis and Treatment of Abdominal Tumors, by Dr. H. D. Ingraham, of Buffalo; The Relation of the Milder to the Graver Diseases of Women, by Dr. C. C. Frederick, of Buffalo; The Removal of Foreign Bodies from the Air Passages, by Dr. John O. Roe, of Rochester; Appendicitis, by Dr. R. N. Cooley, of Hannibal Center; Report of a Case of Comminuted Fracture of the Skull successfully Treated by Antiseptic Surgery—Presentation of Patient, by Dr. E. R. Armstrong, of Holley; and A Demonstration of a New Combination Sterilizer, with Remarks upon the Indications for its Use, by Dr. Frank J. Thornbury, of Buffalo.

The New York Electro-therapeutical Society was organized on the 9th inst., and officers have been elected as follows: President, Dr. William J. Morton; vice-president, Dr. Augustin H. Goelet; secretary and treasurer, Dr. O. S. Phelps.

The Society of the Alumni of Bellevue Hospital.—Officers for the ensuing year were recently elected as follows: President, Dr. Frederick Holme Wiggin; vice-president, Dr. Charles Clifford Barrows; secretary, Dr. William N. Hubbard; treasurer, Dr. Robert J. Carlisle.

St. Mary's Hospital, Brooklyn.—Dr. Robert Safford Newton, of New York, has been appointed visiting neurologist.

Harvard University.—It is announced that Dr. David W. Cheever has been appointed emeritus professor of surgery.

The Death of Dr. W. Burns Thomson, formerly of Edinburgh, took place on April 29th, at Bournemouth, England. He was for many years the central and most conspicuous figure of medical missions in Scotland—a country that has probably done more in that kind of work than any three other countries. He was the founder of the Medical Mission of the Canongate and remained there eight years. After that time, his health becoming insufficient for that kind of work, he went to more genial climates. After 1881 his home was generally in London or the vicinity. He was the author of a few books and many minor writings on the subject of medical missions.

**Change of Address.**—Dr. Charles E. Hackley, to No. 114 West Forty-fourth Street.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 3 to June 10, 1893:*

By direction of the Secretary of War, the order relieving BROOKS, JOHN, Major and Surgeon, from duty at Fort Leavenworth, Kansas, and assigning him to temporary duty as Attending Surgeon and Examiner of Recruits at Philadelphia, Pa., is revoked.

TESSON, LOUIS S., Captain and Assistant Surgeon, is granted leave of absence for twenty-one days, to take effect on or about June 15, 1893.

#### *Appointments.*

STERNBERG, GEORGE M., Lieutenant Colonel and Deputy Surgeon General, to be Surgeon General with the rank of Brigadier General, May 30, 1893.

#### *Promotion.*

JANEWAY, JOHN H., Major and Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel, May 31, 1893.

#### *Reassignments.*

SUTHERLAND, CHARLES, Brigadier General and Surgeon General, May 29, 1893.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 10, 1893:*

WHITE, S. S., Passed Assistant Surgeon. Ordered to the U. S. Steamer Constellation.

LA MOITE, HENRY, Assistant Surgeon. Detached from the U. S. Steamer Constellation and ordered to the U. S. Steamer Newark.

MOORE, A. M., Surgeon. Detached from the Navy Yard, Mare Island, and placed on waiting orders.

LEWIS, D. O., Surgeon. Detached from the Naval Hospital and ordered to the Navy Yard, Mare Island, Cal.

RIGGS, J. E., Assistant Surgeon. Ordered to the Naval Hospital, Mare Island, Cal.

GHON, A. L., Medical Director. Relieved from special duty in New York and ordered to Washington Hospital.

WELLS, H. M., Medical Director. Detached from the Naval Hospital, Washington, and to wait orders.

McCLURG, W. A., Surgeon. Detached from the Bureau of Medicine and Surgery and ordered to the U. S. Steamer Concord.

HENNEBERGER, L. G., Surgeon. Ordered to special duty attending officers and their families in New York.

PERSONS, R. C., Surgeon. Detached from the U. S. Steamer Concord and granted two months' leave.

HOPE, J. S., Assistant Surgeon. Detached from the U. S. Steamer Fern and ordered to the U. S. Steamer Charleston.

#### **Society Meetings for the Coming Week:**

MONDAY, June 19th: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, June 20th: New York Academy of Medicine (Section in General Medicine); Medical Societies of the Counties of Kings and Westchester (annual), N. Y.; Ogdensburg, N. Y., Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, June 21st: Northwestern Medical and Surgical Society of New York (private); New York Academy of Medicine (Section in Public Health and Hygiene); Medico-legal Society, New York; Harlem Medical Association of the City of New York; Medical Societies of the Counties of Allegany (annual) and Tompkins (annual—Ithaca), N. Y.; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, June 22d: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society.

FRIDAY, June 23d: New York Society of German Physicians; Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, June 24th: New York Medical and Surgical Society (private).

## Letters to the Editor.

### TATTOOING IN THE ARMY.

FORT SULLY, SOUTH DAKOTA, May 30, 1893.

*To the Editor of the New York Medical Journal:*

SIR: In justice to the soldier of the United States Army, I desire to take exception to a statement by Dr. Ohmann-Dumesnil in his article Tattooing on page 545 in your issue for May 20, 1893.

He writes that, as far as his observation goes, the "obscene variety of tattooing" is limited to two classes, soldiers and criminals, and is more prevalent among the former.

In view of existing regulations governing enlistments, and the instructions discouraging tattooing in the army of the United States, I feel the author must have in mind the soldiers of foreign countries, surely not those of our own. Any man who presents himself for enlistment at a recruiting station is ineligible if he carries on his person tattooed indelible characters or figures of obscene design. Thus it is seen that no man is accepted into the service of the United States bearing such markings, and I can assure the profession and the general public that at the present time there is indeed very little tattooing of any kind done in the army. I make this assertion from personal observation and from information gathered from private soldiers long years in the service.

During a tour of a year's duty at a recruiting depot in New York Harbor a few years ago the writer saw possibly between two and three thousand recruits, and not one of them had indecent or obscene tattooed characters or designs, though many displayed designs which would be properly classed under the other general divisions of the article referred to.

One old soldier with an army service of over twenty-five years and a service in the navy of about six years (before the war) informs me that he has never seen anything indecent tattooed on a soldier in all that time, though he does recall several instances of such markings seen during his navy service. His statement is corroborated by many others whom the writer has questioned, some of whom, however, occasionally recall an isolated case, but such are indeed very rare.

Tattooing in the army of the United States is but seldom practiced, and, though many soldiers bear tattoo marks, they were in the great majority of cases received prior to enlistment, and are not the "lewd, debauched, indecent, and obscene pictures, mottoes, sentiments, and designs" which Dr. Ohmann-Dumesnil says are even more prevalent among soldiers than criminals.

A. E. BRADLEY, M. D.,

*First Lieutenant and Assistant Surgeon, U. S. Army.*

## Proceedings of Societies.

### AMERICAN MEDICAL ASSOCIATION.

*Forty-fourth Annual Meeting, held in Milwaukee on Tuesday, Wednesday, Thursday, and Friday, June 6, 7, 8, and 9, 1893.*

The President, Dr. HUNTER MCGUIRE, of Richmond, in the Chair.

THE association met in the Academy of Music, and was called to order by the chairman of the committee of arrangements, Dr. U. O. B. WINGATE, of Milwaukee. On the platform were



Dr. H. O. Walker, of Detroit, first vice-president; Mr. Ernest Hart, editor of the *British Medical Journal*; and Dr. Jesse Hawes, of Greeley, Colorado, fourth vice-president.

**An Address of Welcome** was delivered by His Excellency, GEORGE W. PECK, Governor of Wisconsin. He said he had been delegated by a million and a half of people of Wisconsin to bid the association welcome, which he did with pleasure. Wisconsin was a State where there was no need for any one to be sick, where there was no need for cemeteries, except to bury people who came there from other States with diseases that Wisconsin had not had time to cure. The Governor's address was punctuated here and there with applause and laughter.

Then Ex-Mayor P. J. SOMERS was introduced and welcomed the association on behalf of the citizens of Milwaukee.

Dr. WINGATE then presented the president with a gavel having a silver handle and a head made of brick, representative of the solidity of the institutions and industries of the city. Its color was cream, representative of the Cream City of the Lakes, and its borders were studded with pearls taken from Wisconsin's rivers.

**The President's Address.**—The president said that the prime object of medicine was to study the origin of disease, the immediate occasion of its outbreak, with the means of preventing it, and the best means of loosing its malignant hold, if once fastened upon the individual or the community.

Regarding the membership of the American Medical Association and allied associations, he said we could not too highly estimate the importance of attaining the greatest degree of excellence possible in the various independent organizations that were there represented. This could be more effectually obtained through the State and local societies that were in active and friendly relations with the association. The State societies should strive to induce their members to form societies in every county, in all cities, and in all townships or parts of counties where there was a sufficient number of physicians to justify such organizations.

Relative to the revision of the code, he thought it should be referred to the several State medical societies entitled to representation at the meeting, and that these societies should report their action to the annual meeting of the association. This would give a fair expression of the opinions of the representative societies from all parts of the country, and every reputable American practitioner of medicine would have an opportunity to vote on the subject.

The president then referred to the police regulation of small-pox as a matter for the gravest consideration upon the part of the General Government and of the several States of the Union.

Quarantine came in for its share of consideration in the address. In closing, the president touched upon the subject of a national board of health, and said its necessity would be appreciated when it was remembered that our present laws referred almost entirely to quarantine in time of epidemics or threatened epidemics, such laws being carried into effect by the Marine-Hospital Service through the Treasury Department. He had learned that there would be organized movements to secure legislation by Congress on the lines indicated. He therefore suggested that a committee be appointed to co-operate with the committee appointed by the American Public Health Association and committees of other important bodies interested in securing the legislation needed.

On motion of Dr. X. C. SCOTT, of Ohio, the president's address was referred to a special committee to report on the suggestions contained in it.

The president then introduced Mr. Ernest Hart, who made a few timely and exceedingly appropriate remarks.

**The Report of the Treasurer**, Dr. Richard J. Dunglison, of Philadelphia, was read by Secretary Atkinson. It showed a balance of \$5,844.78 in the treasury. On motion, the report was received and adopted.

**The Report of the Secretary** was called for and read by Secretary Atkinson. On motion, the report was adopted.

**The Proposed Rush Monument.**—The president called for the report of the Rush monument committee, but Dr. George H. Robé, of Catonsville, Md., a member of the committee, asked for further time, which was granted.

**The Report of the Committee on a Secretary of Public Health** was read by Secretary Atkinson in the absence of the chairman, Dr. Comegys, of Cincinnati. The committee had been given a full hearing by the Congressional committee. The chairman of the Senate committee, while willing to extend the powers of the existing quarantine office, had not thought it possible to get an appropriation for its establishment. The members of the House committee had favored such a department, but the session had adjourned without action. The best course, the committee thought, was an appeal to President Cleveland that he recommend the matter to Congress in his next annual message.

Dr. BISHOP, of Pennsylvania, moved that the report be referred to the same committee to which would be referred the president's address, to act on the suggestions contained therein. Seconded.

Dr. J. B. HAMILTON, of Chicago, moved, as a substitute, that the report be adopted, that it be printed in the *Journal* of the association, and that the committee be continued. Seconded and carried.

**The Report of the Committee on the Pan-American Medical Congress** was read by Dr. CHARLES A. L. REED, of Cincinnati, secretary general of the congress. The committee reported that every State in the Union, every country in South America, and Hawaii would be represented, and that everything pointed to a successful meeting. On motion, the report was adopted, and a vote of thanks extended to the committee for their efficient work.

*(To be continued.)*

## PHILADELPHIA ACADEMY OF SURGERY.

*Meeting of May 1, 1893.*

The President, Dr. WILLIAM HUNT, in the Chair.

**Individual Experience in the Treatment of Vesical Calculus.**—This was the title of a paper by Dr. JOHN ASHURST, Jr. He had removed calculi from the human body in fifty-one cases. One case had been that of a female child, on whom he had performed lithectomy, or rapid dilatation of the urethra, but the remaining fifty had been in male subjects. In thirty-five of these fifty cases the patients had been operated on by lateral lithotomy, which was the cutting operation that he preferred. He recognized that there were cases in which the median operation was to be preferred, and that there were other cases in which the suprapubic operation was the best, but where the surgeon had the choice of operation, he thought he should select lateral lithotomy. Of the thirty-five cases of lithotomy by the lateral method, twenty had been in children under the age of puberty, and in every case the patient had recovered. In males beyond the age of puberty, including a fair proportion of quite old persons, he had had fifteen cases with three deaths, but only one of the deaths had really been the result of the operation—that of a patient operated on in a neighboring town. Secondary hæmorrhage had occurred on the ninth or tenth day, and

the attempts made by the attending physician to control it had not been successful.

He had had six cases of the median operation, with one death. In one case the operation had been done for the removal of a foreign body—the end of a catheter. In this case he had succeeded not only in removing the foreign body, on which there was a small calcareous deposit, but also in relieving the chronic retention of urine, from which the patient had long suffered, by tearing off the median lobe of the prostate with the forceps. This was fully ten years ago; the patient was still living, and, he believed, had not had occasion to use a catheter since. The case which had proved fatal was in a patient in the last stages of cystitis and chronic renal disease, and the presence of the stone had been simply a complication. An interesting feature in this case had been that, in addition to the presence of a stone, there had been a large quantity of that semi-organized material which had been described by Vandyke Carter as the animal basis of calculi.

He had had one case of the suprapubic operation in which the stone had been a small one, and this particular operation had been chosen because the case was really one of villous tumor of the bladder, and the presence of the stone was simply a complication. The patient had been in a critical condition from hæmorrhage at the time of the operation, but had made a good recovery.

He had had no case of the old-fashioned lithotomy. The operation had already come to be rarely practiced before he had had occasion to resort to the crushing method. The early portion of his practice had been largely with children, and Bigelow's modification had already become the operation of preference when he had first felt that he had a case adapted to its performance. He had performed this operation eight times, with six satisfactory recoveries and two deaths. Both the deaths had been from uræmia dependent upon chronic disease of the kidney.

He had brought with him a number of the calculi which he had removed. The largest weighed three ounces and some drachms. It had been removed by the ordinary lateral operation. It had not been necessary to enlarge the wound by dividing the right side of the prostate, or to crush the stone. By making a large external wound, by grasping the stone with a sufficiently powerful forceps, and by patience in manipulation, this stone had been removed without difficulty, and the patient had had an excellent convalescence.

The largest number of stones which he had removed from one patient was fifty-four. These had been removed by lateral lithotomy. The patient had made a good recovery, but had returned in a year or so with recurrence of the symptoms from a descent of more stones from the kidney. On that occasion he had determined to perform litholapaxy. The patient had done pretty well for a few days, but then the urine had become turbid, containing a large quantity of ropy mucus and pus, uræmia had developed, and the patient had died in convulsions. This was a forcible illustration of the risk attending litholapaxy in cases of cystitis, and since the occurrence of that case he had made it a rule, where the patient presented cystitis in an advanced degree, to recommend the cutting rather than the crushing operation.

With regard to the conclusions he had reached from his own experience, he would say, in the first place, that he had never seen any reason to wish for a better operation than lateral lithotomy in children. Litholapaxy had been resorted to successfully a number of times, and with the improved instruments which we now had the operation was a feasible one, while it could hardly be considered such a few years ago. Until within a short time it had not been possible to get instruments of suffi-

cient strength and delicacy for use in the urethra and bladders of children. Even now the operation of litholapaxy in children seemed to him to be a severer one than lithotomy. The results of cutting for stone in children were so satisfactory that he thought we wanted nothing better. The great advantage of litholapaxy, it seemed to him, was the short time required for after-treatment. If all went well, litholapaxy would allow the patient to go about his business in five or six days. This was a great advantage in adults who were engaged in active business, but in young children it was a matter of no importance. At the same time he was willing to admit that the operation had been improved to such an extent that it was one that might be legitimately resorted to in children if the surgeon thought it preferable.

The median operation seemed to him to have a very limited field. Cases of foreign body in the bladder and cases of very small stone were those to which it was adapted. In some of his cases the operation had not been begun with the knowledge that a stone was present, but for retention of urine where it was not possible to pass an instrument by the urethra. The argument that had been advanced in favor of this operation—that it was attended with less risk of hæmorrhage—did not seem to be entirely well founded. There was very little more risk in the lateral operation. The transverse perineal artery was divided, but with a little care it was not likely that the internal pudic or the artery of the bulb would be injured. In the old days of operation without an anæsthetic it was quite possible that one of these arteries might be wounded in the struggles of the patient. The artery of the bulb could be avoided by striking the staff as far back as possible. The hæmorrhage from which he had had trouble had been from the prostatic plexus of veins, and this was quite as likely to occur in the median as in the lateral operation, and, indeed, he had seen very profuse hæmorrhage from this source after median section.

The suprapubic operation, although just at present the fashionable method, he would reserve for very large stones or for cases in which there was some complication, such as tumor, in addition to the stone. Cases of vesical tumor were more satisfactorily dealt with through the suprapubic incision, but where the case was an uncomplicated one of stone, he had seen no reason to prefer this to the lateral method.

In the female the operation of lithæctasy or rapid dilatation was the one to be chosen, and in almost all cases would be sufficient. Mr. Bryant had shown that stones of considerable size could be removed by this method. In children, stones up to half an inch in diameter, and in adults, stones up to an inch in diameter, could be thus removed. If the stone was larger, it could be broken into several fragments before removal. He believed that the results of this method would be more satisfactory than if an attempt was made to remove the calculus by litholapaxy or by any form of lithotomy. The vesico-vaginal section might leave a permanent fistula. The high operation might, of course, be required for very large stones.

As regarded the operation of lateral lithotomy, the points which were to be observed were, in the first place, to make a large external wound. He had seen very serious trouble result from too small an external incision. There was no objection to a large wound through the skin and superficial fascia; if hæmorrhage occurred, it was easier to deal with it through a large wound, and drainage was more satisfactorily effected. In the second place, he thought it was of great importance to strike the staff as far back as possible. Instead of striking it where it was most superficial, he endeavored to get as far back toward the horizontal portion of the staff as possible. In that way one avoided wounding the artery of the bulb, and obtained

plenty of room where it was needed. His preference was to have the staff firmly hooked up under the pubes, instead of having it made to project in the perinaeum. He believed that in this way it was more firmly held, and that the surgeon could fix the position of the anatomical points better, and therefore cut with more precision. Having struck the staff, he thought, following the advice of Sir William Ferguson, that the deep incision should be made small. He believed that there was a decided advantage in this plan. He did not say that the surgeon should not make the wound in some degree proportionate to the size of the calculus, and in cases where there was a large stone he was in the habit, as he withdrew the knife, of bringing it slightly away from the staff so as to enlarge the deep wound. In children the knife should be withdrawn in close contact with the staff; but in the adult he dropped the knife a little, so as to enlarge the wound in the prostate. The finger was then introduced, and the prostatic enlargement completed by dilatation. He did not at all agree with Mr. Teevan's view that it was safer to cut the prostate than to stretch it. In the introduction of the finger, he laid stress on its introduction above the curve of the staff. In children this was very important, for, if it was not done, the finger might not enter the bladder, but pass into the recto-vesical space. The surgeon could not miss the bladder if he passed the finger above the staff as it was well held up under the pubes.

In his earlier operations he had a great fancy for the scoop in removing calculi, using it as the obstetrician used the vectis, getting the scoop behind the stone and the finger in front of it, and bringing all out together. Of late years he had used the forceps more and the scoop less, although at times it answered a useful purpose. In the withdrawal of the stone, a mistake that he had often seen made was in not carrying the forceps far enough backward toward the coccyx. The portion of the wound where there is plenty of room was far back. He had seen surgeons try unsuccessfully to remove the stone through the anterior portion of the wound when it could have been readily removed if the forceps had been dropped toward the back.

In the high operation it was a great advantage to have the bladder and the rectum distended, though, perhaps, not absolutely necessary. There was an advantage, too, in lateral lithotomy, in having a moderate quantity of fluid, say about four ounces, in the bladder before the operation, as the gush of water, when the bladder was opened, would bring the stone down on the end of the finger. If, however, the bladder was intolerant, he did not care to have it much distended.

With regard to litholapaxy, the points which he considered to be of importance were, in the first place, to crush the stone as thoroughly as could be done, and then, when using the evacuator, to make the stream enter with great gentleness. He believed that cystitis might be aggravated or even caused by using too much force. As regarded the rapidity of the operation of litholapaxy, he had no doubt that an operator would do it with greater rapidity as he did it oftener, but, for his own part, he had found it a slow operation. He thought that no surgeon should undertake it who was not prepared to give as many hours to it as might be necessary. He could recall three cases in the practice of other surgeons in which the patients had died as the direct result of having a stone left half crushed in the bladder. Violent cystitis had come on and the patients had succumbed. Where the operation was undertaken it should be completed. If the surgeon was not prepared to remove the entire stone at one sitting, he should not undertake the operation at all. This was the operation for small stones in patients with healthy bladders. Cystitis was the most dangerous condition in which to resort to litholapaxy. In the case of an

adult presenting himself with stone, the author's first thought was of litholapaxy. He then considered the various circumstances in the case. Litholapaxy had so many advantages in cases to which it was adapted, that he thought it should be the surgeon's first choice.

With regard to the objection that lateral lithotomy might render the patient sterile, he did not see why that should be, provided the operation was confined to one side of the perinaeum and no undue amount of inflammation followed. If there was a great deal of inflammation, it was quite possible that there might be such obstruction of the vas deferens as to prevent the patient from generating with the testis of that side, but there was no more reason why the patient should be rendered sterile by the operation of lateral lithotomy than by the removal of one testicle. In the immense number of operations performed in former years, we had never heard of this objection, and it seemed rather theoretical than practical.

He had had one case of stone weighing less than two grains, which he had diagnosed by the sound and removed by lateral lithotomy. The patient was a lad who had the symptoms of stone in the bladder, and in addition, frequent attacks of sudden and complete retention of urine, due to the calculus entering and plugging the internal meatus. The straining was so excessive that, in the effort to pass water the night before the operation, the patient ruptured subconjunctival vessels in both eyes.

He wished to refer to a few cases of cystotomy for other causes than calculus. He did not include cases where he had operated by Sir Henry Thompson's method of puncturing a contracted bladder above the pubes. He had opened the bladder by cystotomy in eight cases, six of which had been cases of cystitis. Of the six patients, four had recovered and two had died as the result of the diseased state of the urinary organs. In two instances he had opened the bladder for intense pain in the act of micturition, due to a fissure at the neck of the organ. Both patients had recovered. In one case the fissure had followed cystitis the result of gonorrhoea, and in the other case the symptoms had come on after the use of very large sounds.

He had had one case of cystotomy for tuberculous disease of the bladder in a child. This was of a good deal of interest. The patient had at one time been under the care of the late Professor S. D. Gross, who had sounded the child, and said that he felt a stone. It was to be observed, however, that he had never appointed a time to operate, so that it was possible that he might have had some doubts as to the diagnosis. A curious feature of the case was that the father, who was a man of considerable intelligence, had declared that he had himself distinctly heard the click of the stone against the instrument. The author had sounded the child, but had not been entirely satisfied that a calculus was present, although, from the history, he had thought it probable. The child had all the usual symptoms of stone, except sudden arrest of the urine. No stone was found, but there were discharged twenty or thirty little bodies which he presumed were what the older surgeons would have spoken of as fibrinous calculi. They looked like little pieces of catgut. Whether these were masses of tuberculous material or of inspissated mucus and lymph he did not know. The patient had been relieved of his symptoms, but had died two months afterward of tuberculous disease of the mesenteric glands.

Dr. JOHN B. DEEVER had been glad to hear Dr. Ashhurst refer to advanced Bright's disease and cystitis as contra-indications for litholapaxy. He had been struck with the fact that concussion of the bladder walls during the washing out of the fragments must be an exciting factor in producing a uræmic condition when there was disease of the kidneys. He recalled one case of operation by one of the older surgeons where uræmia



had occurred within twenty-four hours after the operation. He had known of one or two such instances. In other cases, apparently similar in character, lithotomy had been performed and no trouble had followed. There was no doubt there was some connection between the operation of litholapaxy and uræmia. In the cases where he had performed the operation he had had a careful examination of the urine made to exclude cystitis and chronic affections of the kidneys before operating, in addition to making the other familiar tests.

Dr. H. R. WHARTON said that, in regard to litholapaxy in children, his experience had been limited to one case—that of a child six years of age. The operation had been quite tedious. He thought that it had taken at least an hour to remove not a very large stone. The child had stood the operation very well, and at the end of the fourth day the urine had been perfectly clear and the child had been out of bed.

### Book Notices.

*On Peripheral Neuritis.* A Treatise. By JAMES ROSS, M. D., LL. D. Aberd., F. R. C. P., late Physician to the Manchester Royal Infirmary; and JEDSON S. BURY, M. D. Lond., M. R. C. P., Senior Assistant Physician to the Manchester Royal Infirmary. With Illustrations. London: Charles Griffin & Co., 1893. Pp. vii+424.

IN the combined work of the late Dr. Ross and Dr. Bury we have presented to us the best essay upon peripheral neuritis in the English language. The first half of the book is entirely by Dr. Ross, but when its completion was prevented by his untimely death, the work was admirably taken up by Dr. Bury and brought to a successful conclusion.

The subject of peripheral neuritis in its various manifestations has become of great importance to the general practitioner as well as to the specialist in nervous diseases, and both classes will find this book valuable and instructive.

The whole subject is handled in a masterly manner, and in completeness of detail and clearness of description the book is all that the neurologist could require, while it is especially grateful to the practitioner who is not a specialist, but who desires information more exact than can be obtained in the ordinary text-books.

*Handbook of Materia Medica, Pharmacy, and Therapeutics*, including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy, and Minute Directions for writing Prescriptions. By SAMUEL O. L. POTTER, A. M., M. D., M. R. C. P. Lond., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco, etc. Fourth Edition, revised. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xii+17 to 781. [Price, \$4.]

WHEN this book first appeared some six years ago we called attention to its many and undoubted merits. The fact that a fourth edition is already demanded shows that it has not lost its hold on the profession. We believe that it is one of the most generally useful works we have on therapeutics and materia medica.

The chapters on pharmacy and prescription-writing make it especially valuable to the student, and there is much in them that even the older practitioner may read with advantage. The alphabetical arrangement of the names of both drugs and diseases makes the volume unusually convenient for reference.

Dr. Potter has given due attention to all the newer remedies—such as aristol, chloralamide, piperazine, etc.—and in all respects the work is kept abreast of the times without in any way affecting the characteristic features that have conduced so greatly to its success.

*Diseases of the Chest, Throat, and Nasal Cavities.* By E. FLETCHER INGALLS, A. M., M. D., Professor of Laryngology and Practice of Medicine, Rush Medical College, etc. Second Edition, revised and enlarged. New York: William Wood & Co., 1892.

THE first edition of this work was published some ten years ago and consisted of rather elementary lectures delivered by the author to his classes of students. The present book is much more comprehensive in scope and purports to cover completely all the subjects included in its title. The matter is necessarily much condensed, and some readers may think it would have been better had the author not attempted to treat of so many diseases within the limits of one volume.

The chapters on physical diagnosis are excellent. This subject was very thoroughly discussed in the first edition, and but little change has been made. The diseases of the lungs and heart are adequately though rather briefly considered. Laryngology and diseases of the nose and throat are much more fully discussed than in the original work. The author's style is clear and agreeable, and it is evident that his views are grounded on a large personal experience.

### BOOKS, ETC., RECEIVED.

*Brain Surgery.* By M. Allen Starr, M. D., Ph. D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, Medical Department of Columbia College, New York, etc. With Fifty-nine Illustrations. New York: William Wood & Co., 1893. Pp. xii+295. [Price, \$3.]

*Lessons in Physical Diagnosis.* By Alfred L. Loomis, M. D., LL. D., Professor of the Practice of Medicine and Pathology in the University of the City of New York. Tenth Edition, revised and enlarged. New York: William Wood & Co., 1893. Pp. xi-3 to 278. [Price, \$3.]

*The Treatment of Constitutional Syphilis.* By Oswald Ziemschen, M. D., Knight of the Iron Cross and of the Prussian Order of the Crown, Wiesbaden. London: H. K. Lewis, 1893. Pp. 70. [Price, 3s. 6d.]

*Impotence and Sexual Weakness in the Male and Female.* By Edward Martin, A. M., M. D., Surgeon to the Howard Hospital, etc., Philadelphia. Detroit: George S. Davis, 1893. Pp. 102. [*The Physicians' Leisure Library.*] [Price, 25 cents.]

*The National Association of Railway Surgeons. Official Report of the Fifth Annual Meeting, held at Old Point Comfort, Va., May 25 to 28, 1892.* Edited by R. Harvey Reed, M. D., Mansfield, Ohio.

*A Successful Method of treating Follicular Tonsillitis.* By Junius C. Hoag, M. D., Chicago.

*The Present Status of Electrolysis in the Treatment of Urethral Strictures. With Statistics of One Hundred Cases.* (Third Series.) By Robert Newman, M. D., New York. [Reprinted from the *Journal of the American Medical Association.*]

*Cremation and its Importance in Cholera.* By Robert Newman, M. D. [Reprinted from the *Sanitarian.*]

*Traitement chirurgical des affections inflammatoires et néoplasiques de l'utérus et ses annexes. Deux procédés inédits d'hystérectomie abdominale et vaginale. La castration totale par le vagin.* Par E. Doyen (de Reims), Professeur suppléant à l'École de médecine, etc. [Extrait des *Archives provinciales de chirurgie.*] Avec quarante-sept figures dans le texte dont vingt-

six en couleurs. Paris: Bureaux des Archives provinciales de chirurgie, 1893.

Cranial Deformity and Optic-nerve Atrophy. By Harry Friedenwald, M. D., Baltimore, Md. [Reprinted from the *American Journal of the Medical Sciences*.]

Cholestatoma of the Ear. By Harry Friedenwald, M. D., Baltimore. [Reprinted from the *Medical News*.]

A Plan to procure Cow's Milk designed for Clinical Purposes. By Henry L. Coit, M. D. (Read before the Practitioners' Club, Newark, N. J.).

Is Evolution trying to do away with the Clitoris? By Robert T. Morris, M. D., New York. [Reprinted from the *Transactions of the American Association of Obstetricians and Gynecologists*.]

An Inquiry into the Causes of the Mortality of Diphtheria, and some Suggestions with Reference to the Treatment of Diphtheria. By Alonzo Bryan, M. D., Detroit, Mich. [Reprinted from the *Physician and Surgeon*.]

Movable Kidney. With a Report of Twelve Cases treated by Nephrorrhaphy. By George M. Edebohls, M. D., New York. [Reprinted from the *American Journal of the Medical Sciences*.]

The Cure of Complete Prolapse of the Rectum by Posterior Proctectomy. By John B. Roberts, M. D., Philadelphia. [Reprinted from the *American Journal of the Medical Sciences*.]

## Reports on the Progress of Medicine.

### PHYSIOLOGICAL CHEMISTRY.

By ERNEST ELLSWORTH SMITH, Ph. D.

#### GASTRIC DIGESTION.

**Hydrochloric Acid.**—While many theories have been brought forward to explain the presence of free hydrochloric acid in gastric juice, the question is not yet answered quite satisfactorily. The views presented differ even in regard to the question of where the acid is formed. Perhaps the majority agree in declaring that gastric hydrochloric acid is a secretion of the parietal cells of the stomach glands, though it is admitted that the argument in favor of this view is one of exclusion only. It has also been held that lactic acid was the primary acid, and that this, by interacting with the sodium chloride of food, led to the formation of hydrochloric acid as a secondary product, the lactic acid being formed either by fermentation of carbohydrate food or from the sugar of the blood and lymph. In opposition to this view are the facts that in the gastric juice there is a greater amount of chlorine than is required to combine with all the bases, and that the excess corresponds to the amount of free hydrochloric acid actually present.

Many of the earlier physiologists held that the formation process was one of electrical decomposition, a chemical reaction being induced within the cell between sodium chloride and sodium bicarbonate or calcium phosphate; but there is no support for such a hypothesis. Many made the suggestion that the acid originated by the interaction of the sodium chloride and sodium dihydrogen phosphate of the blood, the disodium hydrogen phosphate formed either being converted into the monophosphate again by carbon dioxide, or perhaps reacting with calcium chloride and thus giving rise to the further production of free hydrochloric acid along with triple calcium phosphate. But, bearing in mind the facts established by Thompson in relation to acids and bases, this process, if it occurs in the blood, can be explained in a simpler way (Bunge). Although carbon

dioxide is a weak acid, it has an "avidity" above zero, and hence in contact with sodium chloride gives rise by "mass influence" to the formation of at least a small amount of free hydrochloric acid. After removal of this by the secreting cells, more sodium chloride may be acted upon, and thus hydrochloric acid be continually formed and secreted.

Foster has recently put forward an entirely different hypothesis. He suggests that the hydrochloric acid may be formed by the decomposition of highly complex and unstable chlorine compounds formed within the cell by the combining of the chlorine of sodium chloride with organic substances. Recent results reported by Liebermann (Pflüger's *Archiv*, l, 25-54) appear to support a theory combining in a measure the views of Bunge and those of Foster. This investigator, studying the chemical nature of the gastric mucous membrane, obtained a phosphorus-containing organic substance like the lecithins in solubility and chemical behavior, which exists in the tissues in combination with a proteid, resembling therefore nuclein and nucleo-albumins. Liebermann names this compound lecithalbumin. It reacts as an intense acid to litmus and, like nuclein, resists the digestive action of gastric juice, while with soda it swells and forms a very viscid mixture, combining with the soda to form a strongly alkaline compound. It is in virtue of this property of lecithalbumin—i. e., of uniting with alkalis—that Liebermann attributes to it a functional rôle in the formation of gastric hydrochloric acid. According to his explanation, the process occurs in the following way: Before food enters the stomach, the blood-vessels and capillaries of the gastric mucosa are contracted, oxidation and the resulting carbon dioxide are at a minimum, and hence very little hydrochloric acid is formed. But when the stomach is stimulated by the entrance of food and the mucosa blood-vessels are dilated, the chemical activity and the amount of carbon dioxide in the tissues are greatly increased, and consequently considerable sodium chloride is decomposed by mass influence, forming sodium hydroxide and hydrochloric acid. The part played by the lecithalbumin, according to Liebermann, is to unite with the alkali, leaving the acid in part to be secreted as the acid of gastric juice, but also in part to pass into the veins and lymph-vessels, giving rise to a diminished alkalinity of their contents. Directly following the secretion of gastric juice there is a liberation of the alkali held by the lecithalbumin, and consequently there is an increased alkalinity of the blood and lymph, causing a diminished acidity of the urine.

**Albumoses and Peptones.**—When insoluble or coagulable proteids are subjected to the action of pepsin-hydrochloric acid at the body temperature, products are formed which differ in important respects from the original proteid. Besides being soluble and non-coagulable, they are more or less diffusible—a property which indicates at once the purpose of the transformation. The term peptone was early applied to these products of gastric digestion, erroneously as we now know; for, if they are dissolved in water and the neutral solution is saturated with ammonium sulphate, the products are in part precipitated, while another portion remains in solution, thus demonstrating the existence of two distinct classes. The precipitate is composed of albumoses, while the remaining portion is peptone, this name being applied exclusively to the products remaining in solution. Further, it is to be borne in mind that the names albumose and peptone do not represent single but several products. There are four albumoses which may be formed in gastric digestion and two peptones, the albumoses being hetero-albumose, dysalbumose, protoalbumose, and deutoalbumose; the peptones, antipeptone and hemipeptone, which are formed in equal quantities in gastric digestion and together are called amphopeptone.

The usual method of separating albumoses and peptones is by saturating the neutral solution while hot with ammonium sulphate (Wenz). Neumeister, however, has emphasized the need of special precaution in the use of this method, and recently Kühne (*Ztschr. f. Biol.*, xxix, p. 1) has adopted a modification which in detail is as follows: The digestive mixture, properly diluted and made neutral, is saturated while boiling hot with ammonium sulphate and allowed to cool, and the fluid is freed from the separated salt and albumoses. This, heated again to the beginning of boiling, is made strongly alkaline with ammonia and ammonium carbonate and saturated anew, while hot, with ammonium sulphate. After cooling and being filtered from the second albumose precipitate, the fluid is for a third time heated to boiling, kept at this temperature till all ammonia is driven off, saturated again with ammonium sulphate, and finally distinctly acidified with acetic acid, whereupon a third separation of albumoses may occur, especially on cooling. Unless it is carefully subjected to this somewhat laborious treatment, there is no certainty, according to Kühne, that the solution of peptones is entirely free from traces of albumose. The presence of peptone is then shown by obtaining a pink color in response to the biuret test, in applying which it is necessary to use a very large quantity of potash in order to first decompose all the ammonium sulphate in solution.

Strictly speaking, the name albumose is improperly used as a generic term. Just as albumin in the broader sense is replaced in the nomenclature of to-day by the name proteid, so these primary digestive products are properly called by the general name proteoses, the term albumoses being restricted to the primary products obtained in the digestion of true albumins. In the same way globulins are said to be changed into globuloses, myosin into myosinoses, elastin into elastoses, and casein into caseoses.

It is of interest to notice the relation between the successive proteoses and between proteoses and peptones. Notwithstanding that some physiologists have questioned whether proteoses are true digestive products, and have looked upon them as akin to acid-albumin, the following facts regarding these substances may be considered established (see Chittenden, *Jour. of Physiol.*, xii, p. 12): Albumoses or proteoses are the primary products in proteid digestion. Since experiment shows that protoproteose and heteroproteose are only slowly converted into peptone, while deuteroproteose is changed much more quickly, it seems to follow that protoproteose and heteroproteose are the first products formed by the proteolytic action of gastric juice, that these are then gradually converted into deuteroproteose, and finally that this substance by further hydration is changed into true peptone. Moreover, the greater part if not all the peptone formed passes through the stage of proteoses.

Another point of difference between proteoses and peptones which is of special interest to the physiologist is their relative diffusibility. The usual statement regarding this is that peptones are diffusible, while albumoses or proteoses are not. Kühne has recently investigated the subject anew, and concludes that this is not strictly true. His experiments were made with a U-form of dialyzing bag with 264 sq. ctm. of surface exposure, and suspended for twenty-four hours in flowing water, or from 4 to 5 litres of other fluid. Of a solution of heteroalbumose 5.22 per cent. was lost into very dilute ammonia, while the amount lost into acid and neutral solutions was quite inconsiderable. An aqueous solution of protoalbumose lost 19 per cent. into flowing water; a solution in 0.1 per cent. hydrochloric acid, 28.3 per cent. With deutoalbumose the loss of an aqueous solution was 10 per cent.; of a solution in 0.1 per cent. hydrochloric acid, 24.1 per cent. With an aque-

ous solution of amphopeptone the loss was 51.6 per cent.; with antipeptone, 51 per cent. The corresponding loss of a solution of cane sugar was 95.35 per cent.; of a solution of common salt, 100 per cent. Hence proteoses, the intermediate products between the original proteid and true peptones, are diffusible, though less so than peptones themselves.

Regarding the relative amounts of the products formed, it is usually true that at the end of an artificial peptic digestion, however vigorous, a very large part of the proteid will be in the form of proteoses. It is probably the same in natural digestion, though experience leads the writer of this review to believe that there is relatively more peptone at the end of a digestive process in the stomach than is usually found in artificial digestions.

#### The Influence of Saliva on the Gastric Motor and Secretory Functions.

The influence of each secretion on the others with which it comes in contact is a phase of the digestive processes that heretofore has received too little attention from physiologists in general. Biernacki (*Ztschr. f. klin. Med.*, xxi, p. 97), however, has recently repeated and extended the observations of Sticker on the service of saliva in the stomach processes. A test meal was taken, consisting of a starch mixture and white of egg with water, followed immediately by potassium iodide. All was taken both with and without saliva, in the former case the saliva of the mouth being allowed to enter the stomach in the usual way, while in the latter case was taken, not only in introducing the food but also during digestion, that no saliva whatever passed into the stomach. At the end of thirty minutes the stomach contents were removed and tested to determine the total acidity, the amount of hydrochloric acid, the presence of free hydrochloric acid, the peptic digestive activity, and the presence of iodine. The result of the admixture of saliva was a diminution of the volume of gastric contents; an increase of absorption as shown by the disappearance of iodine, otherwise present; a very considerable increase of the total acidity; a marked increase in the percentage of hydrochloric acid present; and the presence of free hydrochloric acid which the parallel digestions without saliva did not contain. Hence the author concludes that, if the food is introduced through the mouth with admixture of saliva, the motor and secretory activities are greater than when it is introduced through a tube, thereby preventing both the admixture of saliva and even its presence in the stomach.

It may be questioned how saliva acts in producing this favorable influence on the gastric functions—whether directly or through changes in the food. Perhaps the first explanation to suggest itself is that the saliva has a direct stimulating action in virtue of its alkalinity; but observation has disproved this view. Experiments with weakly alkaline, neutral, and acid test meals showed that neutral or slightly acid food acted more favorably to these gastric functions than alkaline. On the other hand, when a large quantity (45 c. ctm.) of normal saliva was mixed with the test meal the same favorable influence was noted as though the food had been taken with saliva through the mouth, or had been made neutral or faintly acid. That in the case of admixture with alkaline saliva the favorable influence was not due to the presence of ptyalin was shown by the fact that the alkaline saliva acted in precisely the same way when previously heated to 85° C. for five minutes. Evidently, therefore, since neither the ferment nor alkalinity of the saliva is the direct cause of the increase in gastric activities, some change in the food is brought about, a change in which the ptyalin is not concerned; and this changed food produces the favorable influence on the motor and secretory processes of the stomach. It was found, if the test meal was held in the mouth in small portions and then introduced all at one time through the tube



into the stomach, that this organ was stimulated more constantly and to a greater degree than when the saliva was directly mixed with the meal and administered through the tube as already described. A careful examination revealed the surprising fact that when the slightly alkaline test meal was held in the mouth the chemical reaction was changed, becoming neutral or even faintly acid. Hence it is evident that the test meals taken with saliva, having been rendered neutral or faintly acid in the mouth, were thus in a condition to act more favorably to the gastric activities, as already seen. It also appears that the more highly alkaline the saliva, the stronger is the acid reaction of the food developed in a short time. A new function of the saliva is thus added to our knowledge of digestive processes in the mouth—namely, that of regulating the chemical reaction of food and thus influencing the motor and secretory activities of the stomach. Observations made by Chittenden and H. E. Smith are significant in this connection. They found that the most favorable medium for the diastatic action of ptyalin was, under most circumstances, a neutral fluid. The presence of a small amount of acid proteid or even a minute trace of free acid appeared to still further increase the action.

In order to determine salivary influence on the gastric, motor, and secretory functions in pathological conditions, Biernacki studied the digestion with and without saliva in twelve patients, the majority of whom were suffering from diseased conditions of the stomach. He found that, in general, a stimulus to motor and secretory activities was exerted by the saliva as in health, though he notes that the stomach reacted to a less or possibly to the same degree as in health, while there was never a greater stimulating action. In a case of cancer of the liver with jaundice, the stomach contents without saliva contained no hydrochloric acid, and precisely the same condition existed with saliva. This was also true in another case, probably of the same kind, with jaundice and ascites, and in a case of pulmonary tuberculosis too. On the other hand, in a case of diabetes mellitus, where there was marked subacidity without saliva, the admixture of saliva with the food produced a decided increase of acidity; and in a case of hyperacidity without saliva the admixture of saliva in the parallel experiment gave a reduction to the normal.

Observations were made by the same investigator regarding pepsin formation, and were also of interest. He concludes that salivary influence on enzyme production is much greater in pathological than in normal conditions of the stomach.

body of the patient is then inverted, and he is instructed to take a full inspiration, at the end of which his chest is struck sharp-



ly. The forcible expulsion of air effects a dislodgment of the foreign body. The instrument is manufactured by Messrs. G. Tiemann & Co.

## Miscellany.

**The Removal of a "Pressure Pouch" of the Oesophagus.**—At a recent meeting of the Royal Medical and Chirurgical Society of London Mr. Butlin read a paper on the Removal of a "Pressure Diverticulum or Pouch" of the Oesophagus which, according to the report in the *Lancet* for April 29th, was typical in its situation and in the symptoms which it occasioned. It was removed through a long incision on the anterior border of the left sterno-mastoid muscle. The omo-hyoid muscle and the superior thyroid artery were divided; the carotid sheath and its contents were drawn aside. The pouch was easily found and separated from the surrounding tissues. As the pouch was cut away the opening into the gullet was closed with fine silk sutures. The patient made a rapid and excellent recovery. He believed that this was the first operation of the kind which had been performed in this country. The only similar case with which he was acquainted was that described by Professor von Bergmann in Langenbeck's *Archiv*, Band xliii, Heft 1, 1892. The question of the origin of pressure pouches was shortly discussed and the great difference in the characters of some of the pouches was pointed out. The operation was not difficult; indeed, it was much easier than had been expected. Justification for the operation was found in the intractability of the condition to every other kind of treatment, in the misery which was occasioned by the pouch, and in the fact that, in more than half the recorded cases, death had resulted from the disease, generally by slow starvation. Mr. Clement Lucas inquired if any alteration in the tone or pitch of the voice resulted from the operation. In reading some of Mr. Cock's papers he had come across two cases of pharyngotomy, and in both there had been an alteration in the tone and pitch of the voice, due, as Mr. Cock thought, to interference with the recurrent laryngeal nerve. Mr. Lucas himself considered that it was probably due to division of the external laryngeal branch of the superior laryngeal nerve where it ran beside the superior thyroid artery, producing paralysis of the crico-thyroid muscle on that side. Sir Richard Quain referred to a case of pressure pouch which he had exhibited years ago to the Pathological Society on behalf of Mr. Izod, of Bromley, and of which a drawing was to be found in one of the earlier volumes of the *Transactions*. Mr. Godlee mentioned a case he had recently seen of a young soldier who thought he had been poisoned in Burmah. After a meal he became very violently sick, and some weeks afterward there was difficulty in swallowing. He appeared to have developed a pouch at the lower end of the oesophagus, which he could empty when lying down at night and in certain positions of the body. The case had been treated by passing full-sized bougies past the pouch into the stomach, and this had resulted in cure. He thought that the constriction existing at the lower end of the oesophagus had been increased by the action of a corrosive poison. Mr. Barker asked if these pouches were met with on every aspect of the oesophagus. Mr. Butlin, in reply, said that the voice had not in the least altered since the operation. He regarded the case Mr. Godlee had related as one rather of dilatation of the oesophagus above a stricture than as a true pressure pouch, which latter always occurred at the junction of the

## New Inventions, etc.

### A NEW COMBINED LARYNGEAL DILATOR AND FORCEPS.

By M. M. GILBERT, M. D.,  
MESA, ARIZONA.

This instrument is intended for the removal of foreign bodies from the air passages by preventing spasmodic closure of the glottis.

The instrument is bivalve; when the blades are closed, tubular, and corrugated at the lower extremity of the blades. The blades are five inches long and the handles ten inches. There is a lock at the lower end of the handles; the instrument is aseptic. It is used as follows: Place a gag in the patient's mouth; pass the blades into the glottis and expand them by pressure on the handles, which are then locked. The

pharynx and œsophagus and in every instance (save one in St. Thomas's Hospital Museum) sprang from the posterior aspect of the tube. He had recently learned that Kocher, of Berne, had lately operated twice on cases of this nature, in both with a successful result. All the specimens he had seen could have been fairly dealt with by operation. Though the diagnosis was easy from the symptoms, some of these cases had been mistaken for stricture.

**Wyeth's Pins in Amputation at the Shoulder.**—At a meeting of the Philadelphia Academy of Surgery held on April 3d Dr. John H. Brinton reported two cases of amputation at the shoulder joint in which Wyeth's pins had been used to prevent hæmorrhage. In the discussion Dr. William W. Keen called attention to the control of hæmorrhage by Wyeth's method. This afforded perfect hæmostasis. The speaker had never seen anything better, and as compared with the method which he himself had devised a few years before, by a compression over the subclavian artery, he thought it vastly superior. In the first of Dr. Brinton's cases the pins had been brought out at the end of the acromion process, and when the head of the bone was removed the skin slipped down and the constriction of the tube partially obliterated the cavity where the head of the bone had been. In the second case the pins had emerged three fourths of an inch from the tip of the acromion, and there was no trouble from the slipping of the tube downward.

Dr. John B. Deaver asked how much blood had been lost in these cases.

Dr. Brinton said that in the first case there had been a little blood lost on account of the slipping of the rubber tube—perhaps two ounces. In the second case there had been practically no blood lost.

Dr. Deaver had had no experience with the Wyeth pins in amputation at the shoulder joint. He had relied upon good assistance and had never seen much bleeding. There was no doubt that the method described was an excellent one, and the only question in his mind was whether the presence of the tube did not interfere with the manipulation in disarticulating.

Dr. James M. Barton said that unless there was some tumor encroaching upon the joint, interfering with the manipulation, he was in favor of an assistant grasping the artery as the flap was divided. Some years ago he had seen a patient with large sarcoma of the head of the humerus perish from hæmorrhage on the table. The pins under such circumstances would have saved life.

Dr. Keen thought it certain that the tube did not interfere with the manipulations, but that it assisted in making them. One had that absolute confidence in the hæmostasis which one could not have in any assistant, whose arm or thumb was apt to get tired.

Dr. H. R. Wharton had had no experience with Wyeth's pins in shoulder-joint amputation, but could see how the method should be very useful, although he had not seen much bleeding where there had been good assistants. In his experience, the most blood had been lost in the preliminary incisions. The only point would be in regard to the interference with the disarticulation if the tube slipped. He had seen Dr. Agnew use a pin under the vessels with a ligature above, which controlled the hæmorrhage very satisfactorily.

The president, Dr. William Hunt, said that some years ago he had used the Esmarch tube in the form of a figure of eight in amputation at the shoulder joint with perfect success. An assistant held it up when there was any tendency to slip.

**The Female Bear-horse versus the Male.**—From *Insect Life* we take the following paragraph confirming observations made and denied regarding the propagation of their species by the *Manidae*:

"It is a well-known fact that the male insect of the family *Manidae* approaches the female at the risk of his life. Several instances have been recorded where the female has devoured the male, and we have reason to believe that many similar unrecorded observations have been made. In *Science* (vol. viii, p. 326, Oct. 8, 1886) we described an instance in which the male gained connection with the female only after his head, front legs, and a third of his thorax had been devoured, and we surmised that the act of copulation might ordinarily take place while the female was making a meal of her unfortunate mate. This, however, seems not to be the invariable rule. Colonel John Bowles, of

Washington, D. C., brought us on the 8th of September a pair of *Stagmomantis carolina* which he had carefully watched. When he found them they were in *copula*, and the male was uninjured. While he watched, however, the female turned her head and began to rapidly devour the head of the male. The male remained perfectly quiet and made no effort to escape. She ate up his head, his front legs, and was busily engaged upon his thorax, when Colonel Bowles, wishing to save the specimens in that condition, killed her by painting her head with a camel's-hair brush dipped in chloroform. The observer supposed that the male was already dead, but immediately upon the death of the female the mutilated male made violent efforts to escape, but before he succeeded in doing so he was pinned by Colonel Bowles in the normal position and the specimen was brought to us. The nonchalance with which the male devoted himself to the sacrifice and the struggles which he made immediately upon the death of the female indicated to Colonel Bowles' mind that the male has no serious objection to this method of suicide."

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**Authors of articles intended for publication under the head of "original contributions"** are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

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All communications intended for the editor should be addressed to him in care of the publishers.

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## Lectures and Addresses.

RECENT DISCOVERIES  
IN THE NERVOUS SYSTEM.

By FRANK BAKER, M.D., Ph.D.,

PROFESSOR OF ANATOMY, MEDICAL DEPARTMENT, GEORGETOWN UNIVERSITY,  
WASHINGTON, D.C.

(Concluded from page 663.)

*Cortex of the Cerebrum.*—It has long been known that a considerable portion of the cortex is occupied by large cells of a triangular outline, presenting a pointed extremity toward the exterior. These, the pyramidal cells of authors, are of great size in the so-called motor regions of the cortex—that is to say, in the central convolutions—the region which if injured causes the descending degenerations above referred to. Since the publication of Golgi's chief work\* it has been known that these structures have wide-reaching connections, and Ramón y Cajal and Van Gehuchten have much extended our knowledge.

The largest of these cells may reach  $40\ \mu$ , or about  $\frac{1}{800}$  of an inch, in breadth, and the length of the cell body may be four or five times as great, so that they are among the largest cells in the body. It has been noted that there appears to be a direct proportion between the size of a nerve cell and the number and length of its processes. This is justified in the present instance, for there proceed from these cells highly complicated processes, some of them of great length. From the apex of the cell a protoplasmic stem passes up through the superficial layers of the cortex and terminates in an arched arborescent panicle, each composed of plume-like expansions barbed with secondary spines. These panicles interlace with each other throughout the superficial layer of the cortex in the most intricate manner, forming a perfect forest of branches which, however, never anastomose with each other (see Fig. 15). From the sides of the cell body protoplasmic processes arranged in the usual tuft-like manner extend laterally, and from below there descends into the white fibers of the zona radiata an axis-cylinder process that gives off at intervals a few collaterals (Fig. 16). There seems to be no reason to doubt that many of these axis-cylinder processes pass down in the pyramidal tracts and finally reach the spinal cord as some of the fibers of the antero-lateral columns, distributing their terminal collaterals to the motor cells of the anterior horn.

Besides the extraordinary appearance and peculiar situation of these cells there are reasons drawn from embryology and from comparative anatomy that indicate the probability that they are the chief agents in the psychic activity of the cortex. As we ascend the scale from the lower vertebrates to man an increasing complexity of structure is found in these cells, and there is also seen a similar progressive development when the different stages of their growth in the embryo are observed (Fig. 17). Ramón y Cajal has therefore given to these structures the name of *psychic cells*.

These elements are scattered throughout the cortex in the pyramidal layers of Meynert. Those lying superficially are small and their panicles are short, and there is a regular

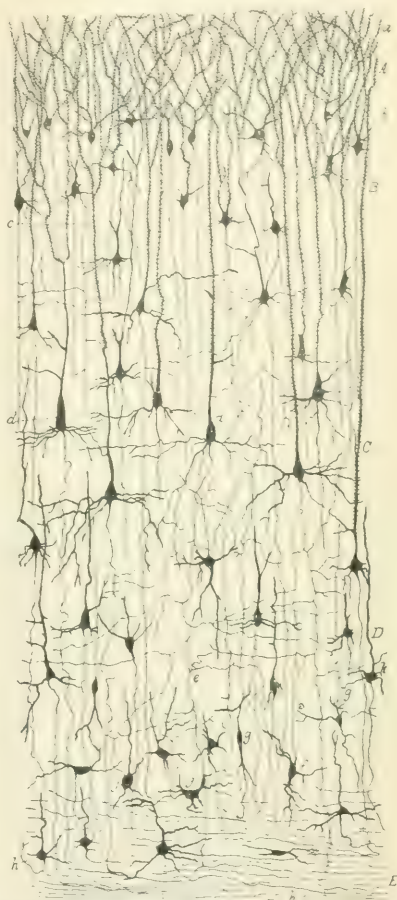


FIG. 15. Section of the cerebral cortex (Ramón y Cajal). From the supra-tentorial region of a young mouse. A. Molecular layer. B. Small pyramidal layer. C. Large pyramidal layer. D. Layer of triangular corpuscles. E. White matter. a, panicles of the pyramids; b, smallest and most superficial of the pyramids; c, axis-cylinder from a small pyramid; d, large pyramidal; e, axis-cylinder from a large pyramid; f, cell with ascending axis-cylinder; g, similar but smaller cell; h, cells found in the white matter; i, rounded cell that sends its axis cylinder toward the white substance; j, cell with short axis-cylinder process.

increase in size and length of panicles as we proceed deeper, until some reach the enormous length shown in the cell at the right in Fig. 15.

In Meynert's fourth layer (layer of mixed or polymorphous cells) the psychic cells appear to undergo certain reductions. Here the panicles are no longer found; a stem like that which bears them may extend for some distance toward the surface, but it finally breaks up into terminals like other protoplasmic processes. These reductions be-

\* *Sulla fine anatomica degli organi centrali del sistema nervoso.* Milano, 1885-'86.



come greater in the deeper portions of the layer, until finally we reach the ordinary form of a stellate multipolar cell with an axis-cylinder process (see Fig. 15).



FIG. 16.—Psychic cells and their connections. A The simplest form of connection: *a*, psychic cell forming with its processes, *b*, *c*, *d*, a neuron of the first order; *e*, cortical panicle, cellulipetal; *f*, *g*, lateral processes; *d*, axis-cylinder process forming a portion of the pyramidal tract; *e*, terminal filaments embracing *f*, a cell of the spinal cord which forms a neuron of the second order, sending an axis-cylinder process, *g*, in the anterior root of the spinal cord to break into terminal filaments within the motorial plate of a muscle, *h*. B. Connection of a psychic cell with more than one secondary neuron by means of the collaterals of its axis-cylinder process. C. Connection of psychic cells with each other by means of their collateral processes. Communication of stimuli by means of cellulifugal process, *i*, coming up from the zona radiata.

Ramón y Cajal suggests that some of the interactions that take place between the psychic cells may be such as are represented in Fig. 18. An impulse arriving by the affer-

ent fiber E is conveyed by its terminal filaments to the panicle of the psychic cells lying in the superficial layers of the cortex. These transmit it downward and at the same time

impulses by means of their own collaterals, *F*, to other cortical cells, or they may carry it down to lower levels.

Although the psychic cells are the principal elements of the cerebral cortex, there are others that should be mentioned. Throughout the superficial layer there are scattered sparsely a few cells of peculiar types. There are at least two classes of these: First, fusiform or irregularly-shaped cells with processes of great length given off from either end and passing horizontally (Fig. 19, A, B, D, E). In some cases, as in cell A, several axis cylinders be-

long to the same cell, usually arising from its processes. Such multiplication is not known to occur elsewhere in the human body, and reminds one of the nerve cells of batrachians and reptiles, several of whose processes may be transformed into nerve fibers. Second, polygonal or stellate cells sending divergent varicose ramifications in every direction, some reaching the free surface of the cortex, others penetrating deeply into the subjacent layers. These have, however, axis-cylinder processes that have no tendency to descend, but run either horizontally or toward the surface.

Below the pyramidal layers cells are found that send their axis-cylinder processes upward (Fig. 15, *f*, *g*), also others that have short axis cylinder processes like the commissural cells of the spinal cord (Fig. 15, *j*).

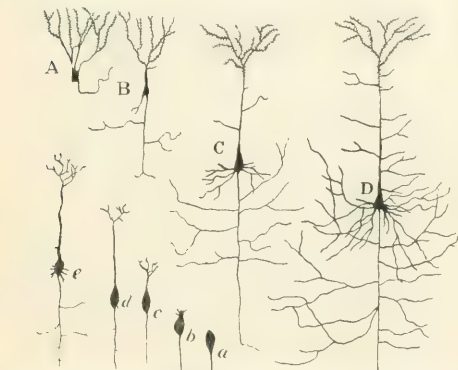


FIG. 17.—Phylogeny and ontogeny of the psychic cells (Ramón y Cajal). The upper series of cells shows the psychic cell in different vertebrates. A. Frog. B. Newt. C. Mouse. D. Man. The lower series shows the stages of growth that a single cell passes through. *a*, neuroblast with axis-cylinder process just commencing; *b*, panicle commencing; *c*, panicle and axis-cylinder process more advanced; *d*, collaterals of axis cylinder appearing; *e*, collaterals of the cell body appearing.

ent fiber E is conveyed by its terminal filaments to the panicle of the psychic cells lying in the superficial layers of the cortex. These transmit it downward and at the same time

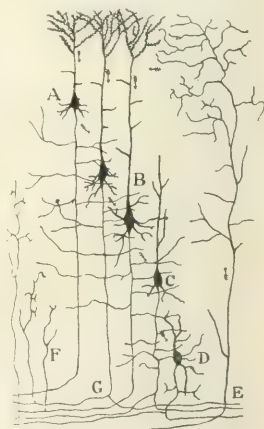


FIG. 18.—Cortical currents (Ramón y Cajal). A. Small pyramidal cell. B. Giant pyramidal cell. C. Pyramidal cell that has lost its panicle. D. Stellate cell. E. Terminal fibril coming from cells situated in other centers. F. Collaterals of the white substance. G. Axis cylinder bifurcating in the white substance.

The fibers constituting the white matter of the hemispheres may be classified as follows :

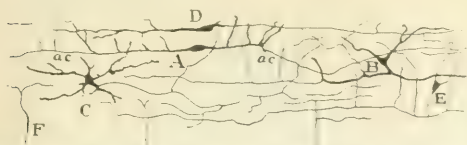


FIG. 19.—Sketches of first cerebral layer (Ramón y Cajal). A. Fusiform cells with two horizontal axis-cylinder processes. B. Triangular cells. C. Polygonal cells with a single axis-cylinder process. D. Fusiform cells with a horizontal axis-cylinder process. E. Small cell with a bifurcated axis-cylinder process.

*a.* PROJECTION FIBERS—those which project the impulses of the outside world upon the sensorium or the reverse. Divisible, therefore, into :

1. *Cortico-afferent*—those carrying impulses to the cortex from lower levels.
2. *Cortico-efferent*—those carrying impulses from the cortex to lower levels.

*b.* ASSOCIATION FIBERS\*—those which correlate cortical areas, subdivided into :

1. *Arcuate*, correlating areas of the same hemisphere.
2. *Commissural*, correlating areas of opposite hemispheres.

The cortico-afferent fibers are not easily made out, as the cell bodies must necessarily lie beyond the field of vision. Yet there are certain large-fibered terminals (E, Fig. 18) that pass up from below to the outer layers, that appear to belong to cells in the cerebellum or the medulla.

The cortico-efferent fibers appear to proceed from all regions of the cortex, passing through the corpus striatum to converge in the cerebral peduncles. They arise as axis-cylinder processes from all the varieties of the psychic cells, large pyramids, small pyramids, and those without panicles. Most of them pass to the pyramidal tracts of the medulla and spinal cord. Collaterals from these fibers may pass either to the corpus callosum (C, Fig. 21) or to neighboring convolutions, thus becoming association fibers. They usually communicate by means of fine collaterals with the cellular elements of the corpus striatum.

The arcuate fibers (Fig. 20) may also arise from all varieties of the psychic cells. They are extremely numerous in the higher animals, sending their terminals and collaterals into every region of the cortex. The fasciculus arcuatus is almost entirely made up by their trunks. In adult forms their complication is so great as to make it beyond our power to disentangle them ; it is therefore necessary to investigate them in the embryos of small mammals, where the whole may be brought within the limits of the microscopical field. The whole system offers a remarkable analogy to the fibers and collaterals found in the columns of the spinal cord. The shortest fibers of this class are

\* Meynert confines this term to fibers associating areas of the same hemisphere, or those termed in the text *arcuate* fibers. He supposes that the commissural fibers connected identical or homogeneous areas of the opposite hemispheres. This is now known not to be the case, all fibers being associational in the sense of connecting heterogeneous areas.

those belonging to the commissural cells of the deeper layers of the cortex, while some of the longer fibers are those of the spindle cells of the superficial layer.

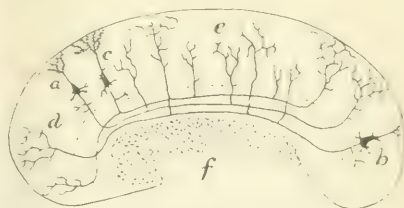


FIG. 20.—Arcuate fibers (Ramón y Cajal). Diagram of an antero-posterior section of one of the hemispheres of the cerebrum to show that arrangement of the fibers associating the frontal and occipital lobes. *a*, psychic cell of the frontal lobe sending fibers to terminate in the occipital lobe ; *b*, psychic cell of the occipital lobe sending fibers to terminate in the frontal lobe ; *c*, psychic cell of frontal lobe whose axis-cylinder process bifurcates ; *d*, terminal tuft ; *e*, collaterals to parietal lobe ; *f*, corpus callosum cut across.

The commissural fibers (Fig. 21) may pass to the opposite side either in the corpus callosum or in the anterior commissure. The fibers of the corpus callosum have long been noted for their fineness, and this is found to arise from the fact that many of them are collaterals from axis-cylinder processes. These may arise either from the arcuate fibers or from the efferent projection fibers. It is not known whether any afferent fibers send collaterals to the opposite side. Besides these, there are certain commissural fibers derived directly from the small pyramids of the cortex.

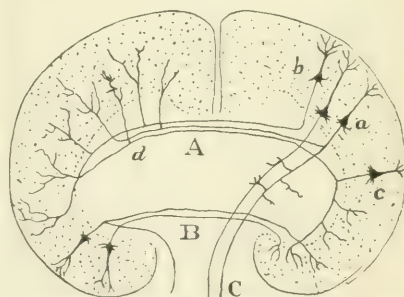


FIG. 21.—Commissural fibers (Ramón y Cajal). Diagram of a cross section of the hemispheres showing the arrangement of the fibers connecting the areas on opposite sides. A. Corpus callosum. B. Anterior commissure. C. Peduncular fibers. *a*, psychic cell of the pyramidal tract that sends a collateral to the opposite side ; *b*, psychic cell whose axis-cylinder process bends at a right angle and is widely distributed on the opposite side ; *c*, psychic cell with bifurcating axis-cylinder process ; *d*, terminals.

The idea so long prevalent that the fibers of the corpus callosum associate precisely identical areas of the cortex in opposite hemispheres must be abandoned. By examining the brains of small mammals it has been clearly demonstrated that a single fiber may be widely distributed throughout the opposite side. It is, in fact, doubtful whether, in any case whatever, such a union of identical areas really occurs.

The fibers of the cortex myelinate late, none receiving their medullary sheath until the ninth month of fetal life. Those of the central convolutions are the first to receive it,

then those of the occipital lobe. The former appear to be connected with the motor functions, the latter with the functions of visual memory.

*The Cerebellum.*—If the new discoveries give promise of leading to a rational knowledge of the elements of the cerebrum, what shall be said of the cerebellum, that organ which has caused so much conjecture and concerning which so many contradictory views have been expressed that Eckhardt said that it would be much more satisfactory if we knew nothing at all about it?

Anatomists since the time of Gall have been struck with its remarkable relations and have considered it an important organ. While they no longer assign to it the control of the procreative functions, yet its union, by means of clearly defined paths, with the spinal cord, the basal ganglia, and the cortex cerebri, make it probable that it performs some essential function; and the fact that it exists throughout the vertebrate series, increasing in size and complexity as we ascend the scale, indicates that this function is one connected with the higher activities of the nervous system. Yet, with all the elaborate researches that have been made, our knowledge of its histology has hitherto been meager.

Its cortex is usually described (Quain, Gray, Schwalbe, etc.) as composed of two layers—an outer clear gray or molecular layer, and an inner reddish-gray or granular layer. At the junction of these two layers are found the large, flask-shaped cells called the cells of Purkinje. It has been known for some time that these cells send branches toward the periphery, and that an axis-cylinder process from them is directed toward the fibrous center of the convolution.

When stained by the Golgi method, these cells remind one of the psychic cells of the cerebrum in their size and general arrangement. Yet there are some striking differences. From the large, spheroidal cell body there are given off two or more trunk-like processes, which branch quite extensively and have upon them spines like those upon the panicles of the psychic cells. This ramification does not extend in all directions, but is, as Obersteiner has aptly said, like that of an espalier fruit tree—expanded in two dimensions only, so that when a section is taken across a convolution the processes show as large and fan-like (Fig. 22, *a*), while a section lengthwise of the convolution shows only an edge not occupying more space than the width of the cell body (Fig. 23, *d*, *d'*). The cells lie in a single narrow stratum of the cortex. From the lower portion of each a well-marked axis-cylinder process is given off from which collaterals pass to ramify about the processes of neighboring cells, probably assisting to correlate the action of these elements.

Two other classes of cells are in intimate relation with the cells of Purkinje. First, small, stellate cells of the outer layer (Fig. 22, *b*, *b*), whose axis cylinder processes run transversely—that is to say, parallel to the plane of ramification of Purkinje's cells, giving off collaterals that pass downward and break into fine tufts, enveloping the body of those cells in a fine basket-like reticulum, the *Endkorben* of Kölliker. These cells correlate with themselves the Purkinje cells of a single transverse system.

Second, the granular cells of the inner layer, elements concerning which there has been much dispute, Henle and Merkel considering them as lymphatic elements, Gerlach

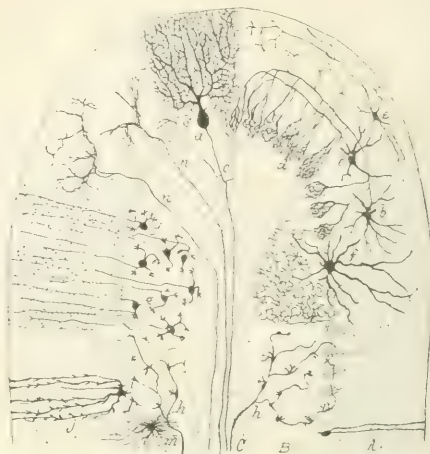


FIG. 22.—Transverse section of a convolution of the cerebellum. A. Molecular layer. B. Granular layer. C. White substance. *a*, Purkinje's cell, front view. *b*, small stellate cells of the molecular layer. *c*, superficial stellate cells; *d*, large stellate cells of the granular layer; *e*, granules with ascending axis-cylinder processes bifurcating at *i*; *f*, mossy fibers; *g*, neuroglia cell with radial processes. *h*, axon-cylinder fiber of a cell of Purkinje sending collaterals to adjacent cells.

and Kölliker holding that they are of a connective-tissue character, while Obersteiner thought that they were special elements peculiar to this tissue. They are now known to be small polyhedral nerve cells with short protoplasmic processes ending abruptly in tufts, and with axis-cylinder processes that ascend into the outer layer and there divide, T-like, into branches that run parallel to the convolutions, at right angles to the plane of ramification of the cells of Purkinje. These *parallel fibers* (Fig. 23, *b*), as they are called, run for long distances, connecting the Purkinje cells of different transverse systems. They seem finally to terminate freely.

Cells of still another class are found here and there in the inner layer—the so-called large, stellate cells (Fig. 22, *f*). These send their protoplasmic processes far toward the surface, while their axis-cylinder processes give off innumerable collaterals that divide and subdivide into finely interlacing branches that occupy nearly the whole of the molecular zone around the granules.

It is difficult to come to any definite conclusion with regard to fibers coming from other regions, as their length is so great that even in the smallest animals there is no possibility of tracing their course from the cells of origin to their termination. Two kinds of terminals are found, both of a very special character.

The afferent fibers for the cells of Purkinje pass up from the medullary substance into the molecular layer and there divide into branches that apply themselves to the



corresponding ramifications of the Purkinje cells, ascending among them, as Ramón y Cajal says, like a liana among the branches of a tropical tree. For this reason he named them the climbing or scandent fibers (*fibras trepadoras*).

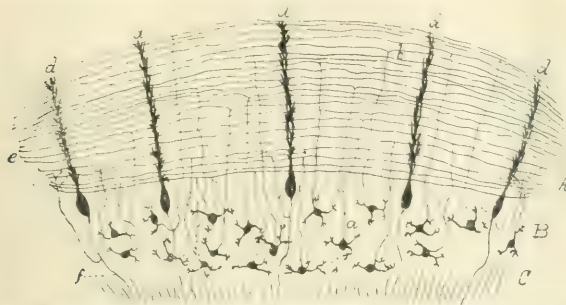


FIG. 23.—Longitudinal section of a convolution of the cerebellum. A, Molecular layer. B, granular layer. C, White substance. *a*, ascending axis-cylinder process of a granule; *b*, bifurcation of that process to form a parallel fiber; *c, d, e*, Purkinje's cell seen in profile; *f*, axis-cylinder process of a cell of Purkinje.

The afferent fibers for the granular cells of the inner layer are thick and richly ramified. At short distances they present tufts of short diverging branches that terminate freely. This gives them the aspect of a branch covered with mossy growths. They are accordingly named mossy fibers (*fibras musgosas*). Ramón y Cajal suggests that they are the terminations of fibers belonging to the cerebellar tract of the cord.

The whole system of the cerebellum shows in a most striking manner that it is by contact and not by continuity of structure that nervous impulses are transmitted. It also shows that different parts of the same cell may be supplied with terminal fibers from quite different sources. The bodies of the cells of Purkinje are surrounded by the basket terminals of the stellate cells of the molecular layer, while their protoplasmic processes are in contact with the scandent, afferent fibers that arise from more distant portions of the nervous system.

Such being the general plan of constitution of the nervous centers and of the nerves arising therefrom, there still remains to be considered the nervous structure of the organs of special sense—the nose, the eye, and the ear. It is well known that the olfactory bulb and the retina are, morphologically speaking, portions of the brain. In many lower animals the bulb is seen to be a distinct lobe projecting from the hemispheres and provided with its own special ventricle, and in the embryo the retina is found to be the invaginated end of a stalk-like outgrowth from the older portion of the fore-brain. We might therefore expect to find in these organs an arrangement somewhat similar to that of the cerebral cortex.

The ear has a somewhat different history, and is rather to be compared to a peripheral sense organ that has been gradually withdrawn from the surface, like the spinal ganglia.

**Olfactory Organ.**—The active cortical elements are represented here by large bifurcated elements called mitral cells (Fig. 24, *c*). These lie in the olfactory bulb in the so-called intermediate or nerve-cell layer. Like the psychic cells and the cells of Purkinje, these send toward the periphery a trunk that breaks up into a tuft of convoluted and varicose processes and give off an axis cylinder process which extends centrally and ends in the hippocampal area of the general cortex. The olfactory sensations are brought to these by means of true bipolar aesthesioblasts situated in the olfactory membrane. These present externally one short process for collecting sensations, while from the opposite end a process leads centrally to end in a convoluted tuft that closely intertwines with the similar tuft on the peripheral process of a mitral cell. These intertwining varicose tufts form the *olfactory glomeruli*, which have hitherto puzzled anatomists so much.

It will be seen that the aesthesioblasts preserve the primitive form found in invertebrates throughout the surface of the body. The olfactory membrane is therefore to be compared to a spinal ganglion in which the elements have become spread out superficially. The investigations of His with reference to their development fully confirm this.

Neuroglia cells in considerable numbers are found about the aesthesioblasts. They appear to perform an insulating

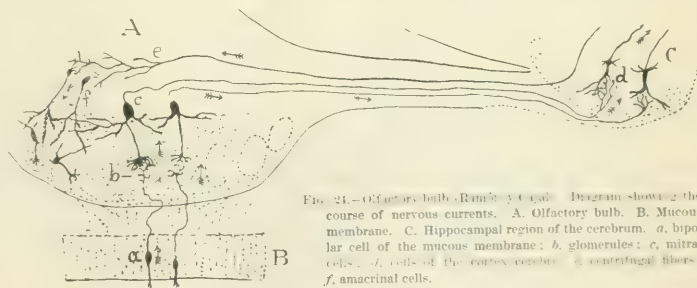


FIG. 24.—Olfactory bulb. Ramón y Cajal. Diagram showing the course of nervous currents. A, Olfactory bulb. B, Mucous membrane. C, Hippocampal region of the cerebrum. *a*, bipolar cell of the mucous membrane; *b*, glomerule; *c*, mitral cell; *d*, cells of the cortex cerebri; *e*, centrifugal fibers; *f*, amacrine cells.

function and preserve the primitive form which has been spoken of as occurring in the embryonic spinal cord.

Besides the apparatus just described, which appears to be solely for the purpose of receiving and transmitting sensations, other cells are found which, with their connections, appear to constitute a regulating or correlating apparatus. These—the amacrine cells (Ramón y Cajal)—are situated within the deeper or so-called granular layer of the olfactory bulb, and have this special peculiarity, that they have no process presenting the appearance of an axis-cylinder process. They are small and polyhedral, having a

tuft-like expansion directed centrally and a peripheral stem that sends out plume-like processes that come in contact with the lateral expansions of the mitral cells. The centrally directed processes are in contact with the terminals of centrifugal fibers that come in along the olfactory tract.

Certain stellate cells scattered here and there throughout the granular layer appear to be large-sized modifications of the granular cells and to have similar connections.

It will be seen from Fig. 24 that the path of the sensory impulses is quite simple. Received upon the aesthesioblasts at *a*, they are transmitted to the glomeruli at *b*, thence to the mitral cells *c*, and finally taken up by the hippocampal region at *d*. The regulating mechanism passes from the central organs through the fiber *e*, thence to the granular cells *f*. In either centripetal or centrifugal path but two neurons are employed.

**The Retina.**—The nervous apparatus of the retina is highly specialized and the homology of the different structures with those found in the cortex is by no means clear. In this case the aesthesioblasts appear to be the rods and cones which are situated upon that surface of the cerebral outgrowth which was originally free and ventricular, therefore a part of the primitive medullary groove. These, like aesthesioblasts elsewhere, are bipolar cells with a specialized cellulipetal process for collecting impulses, and another cellulifugal for distributing them to other cells. These nuclei are contained in the so-called layer of visual cells and their cellulifugal expansion is found in the external plexiform layer. The latter differs somewhat for the two classes of cells, the rods ending in small spherules, the cones breaking up into laterally expanded tufts (Fig. 25).

tions derived from special cells. This apparatus occupies the internal granular layer, and is composed of, first, a series of bipolar cells that take up impulses from the rods and cones and deliver them to the ganglion cells; second, a series of laterally extended cells (Fig. 26) that correlate elements of different localities.

The cellulifugal processes of the rod bipolars all appear to end at about the same level, but the cone bipolars represent the remarkable peculiarity of ending at definite and distinct levels in the internal plexiform layer. In mammals at least five such levels can be made out, and in birds seven (see Fig. 25).

The laterally extended cells are of several different varieties. Some lie within the external plexiform layer and connect the bases of the rods and cones. These, as described by Ramón y Cajal, have the usual short cellulipetal processes and an extended axis cylinder which may give off collaterals or terminate as a varicose tuft (Fig. 25, *a, b*). Sometimes processes from these cells descend to the internal plexiform layer (Fig. 25, *c*). But the most curious and apparently the most important of these elements are the *amacrine* cells similar to those of the olfactory membrane that form the deepest stratum of the internal granular layer.\*

Some of them appear to be assigned to certain levels of the internal granular layer after the manner of the cone bipolars (Fig. 24, *f, g, h, j, l*), while others supply several layers by obliquely directed fibers (Fig. 25, *m, n*).

The collecting processes of the ganglionic cells adapt themselves to these peculiarities—some expanding in a single layer (monostratal), others being confined to

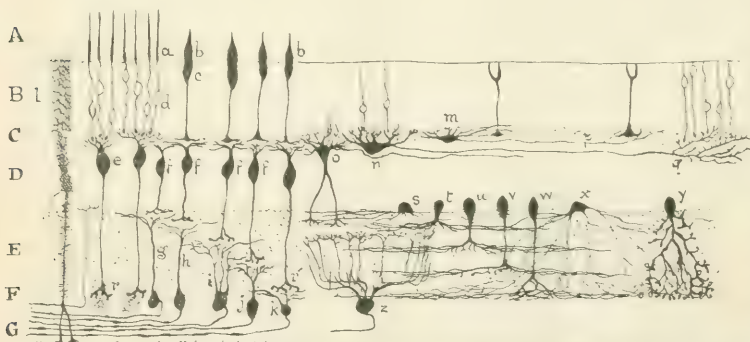


FIG. 25. Cross section of the retina. Ramón y Cajal. A. Layer of rods and cones. B. External granular layer. C. External plexiform layer. D. Internal granular layer. E. Internal plexiform layer. F. Layer of ganglionic cells. G. Layer of nerve fibers. *a*, rod; *b*, cone; *c*, cone nucleus; *d*, rod nucleus; *e*, rod bipolar; *f*, cone bipolar; *g*, *h*, *i*, *j*, *k*, ganglionic cells branching at different levels of the internal plexiform layer; *l*, neuroglia cell or fiber of Müller; *m*, small or external horizontal cell; *n*, internal or large horizontal cell; *o*, same with descending processes; *p*, axis-cylinder process of cell *q*; *q*, terminal tuft of cell *n*; *r*, inferior ramification of the rod bipolars; *r'*, inferior ramification of the cone bipolars; *s*, *t*, *u*, *v*, *w*, amacrine cells branching in distinct layers of the internal plexiform layer; *x*, *y*, diffuse amacrine cells; *z*, bistratal ganglion cell.

The great cells of the ganglionic layer correspond apparently to the psychic cells of the cortex, as they send an axis-cylinder process brainward along the optic nerve and throw out collecting expansions. There is, however, interposed between them and the aesthesioblasts an apparatus which apparently has for its object the assorting of sensa-

tions derived from the rods and cones, while still others are distributed throughout the entire thickness of the internal plexiform layer (diffuse). It can easily be seen that in an apparatus like this there are marvelous possibilities for combining and co-ordinating impressions made upon the terminals of the aesthesioblasts. If color perceptions are assigned principally to the cones, it may be that in this peculiar structure of the retina we possess a clew to the method by which such sensations are sorted out and isolated so as to produce a visual concept.

Like those of the olfactory mucous membrane, the neuroglia cells of the retina (fibers of Müller) probably have

\* These are the spongioblasts of W. Müller. As His has applied this term to embryonic neuroglia cells, for which it seems more aptly fitted, it seems better to adopt the name in the text proposed by Ramón y Cajal.

an isolating as well as a sustentacular function. They also preserve the primitive spongioblastic type, passing through the entire thickness of the organ and expanding at either end into limiting membranes. The outer of these—being,

process passes brainward and, on reaching the central ganglia, divides like the processes of an aesthesioblast of a spinal nerve.

It would appear that we have here, as in so many cases in the cranial nerves, traces of an earlier phylogenetic condition. The aesthesioblasts have been withdrawn from the surface as in the case of the spinal nerves, but not to so remote regions. They show traces also of their primitive condition in that they remain bipolar, as in fishes, never assuming a unipolar type as in the spinal ganglia.

By this hasty review of the main features of the new discoveries it will be seen that we are entering upon an entirely new era in investigations of the nervous system. We experience something of the shock which

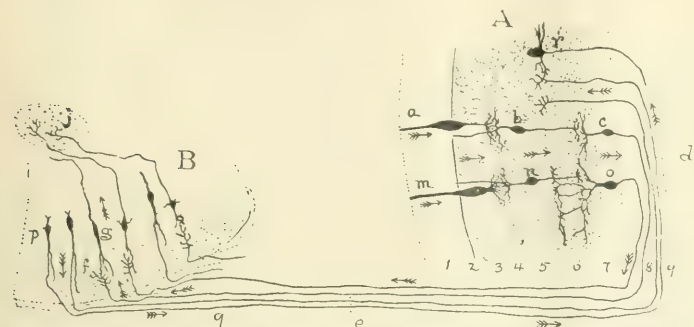


FIG. 25.—Course of luminous impressions (Ramón y Cajal). A. Retina. B. Corpora quadrigemina. *a*, cone; *b*, cone bipolar; *c*, ganglion cell; *d*, its axis-cylinder process; *e*, its terminal filaments; *g*, cell of corpora quadrigemina; *h*, central ganglion; *m*, *n*, *o*, similar series from a rod; *p*, *q*, a peripheral current terminating in an amacrine cell *r*.

as Minot has pointed out, near the primitive ventricular surface—corresponds to the limitans interna of the cord; the inner, to the velum confine.

In Fig. 26 are shown the courses of the currents excited by visual impressions received upon the retina. That affecting a cone, *a*, is transferred to a cone bipolar at *b*, and thence to the ganglionic cell, *c*, which transfers it by means of its axis-cylinder process, *d*, *e*, and its terminal filaments, *f*, to cells of the corpora quadrigemina or the geniculate bodies at *g*. These may refer it to a central ganglion at *j* or to the cortex. A similar path may be made out for the currents affecting the rods (Fig. 26, *m*, *n*, *o*).

Peripheral currents are also probably traveling from the brain along the path *p*, *q*, and affecting the amacrine cells, *r*.

**Auditory Capsule.**—Retzius has recently investigated the terminations of the auditory nerve both in the semicircular canals and in the organ of Corti,

and comes to the conclusion that the epithelial elements of these regions are none of them nerve elements, as had been previously supposed. He finds the nerve terminals proper between these elements, like the terminals of the sensory nerves that supply epithelium in other regions. The true aesthesioblasts lie in ganglionic masses, situated, for the cochlear nerve, in the ganglion spirale; for the vestibular nerve, in the little-known intumescentia ganglioformis of Scarpa (see Fig. 27) that is found in the internal auditory meatus.



FIG. 27.—Auditory nerve in the internal auditory meatus (Schwalbe). *a*, vestibular nerve; *b*, cochlear nerve; *c*, ganglion of Scarpa intumescentia ganglioformis (Scarpa).

of Corti (see Fig. 27) that is found in the internal auditory meatus.

The distribution of the processes is essentially the same in both cases. The cellulipetal process ramifies between and about the epithelial cells (see Fig. 28); the cellulifugal

an inhabitant of the temperate zone might feel if suddenly placed in the midst of an unknown tropical forest, surrounded on every side by new and strange forms. All the

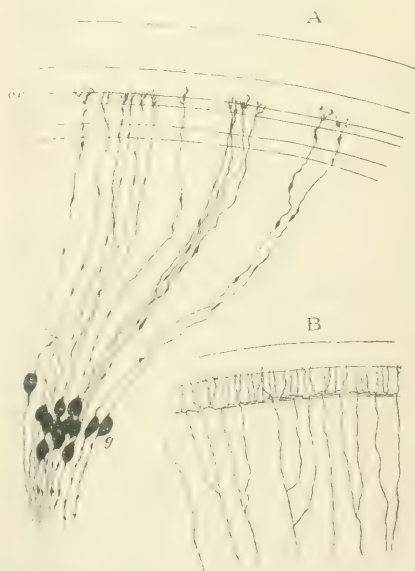


FIG. 28.—Terminations of auditory nerve (Retzius). A. Part of the lamina spiralis of a mouse four days old, showing bipolar ganglion cells springing from the ganglion spirale, *a*, and ending in the organ of Corti, *b*. B. Part of the organ of Corti of a mouse showing branched nerve fibers.

ideas that we have had concerning the development and interrelations of the structures must be revised. It is evident that we are as yet on the very threshold of inquiry; the entire nervous system must be re-examined, the history



of every ganglionic center must be traced. This is rapidly being done, and we may expect that in the next few years important additions to our knowledge will be made, which will be unquestionably followed by practical results of great moment.

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1415 CORCORAN STREET, WASHINGTON, D. C.

## Original Communications.

### ON SUBPHRENIC ABSCESS.\*

By S. J. MELTZER, M.D.

THE master of physical diagnosis, Wintrich,† was about the first one to mistake an air-containing subphrenic abscess for pyopneumothorax. "I made the wrong diagnosis," he says, "because I put too much reliance upon the physical signs." By physical signs we can only ascertain that there is liquid, with or without air, in a cavity lying within the thorax, but we can hardly rely on them to decide whether the fluid is located above or below the diaphragm. Experience has taught us that this movable partition may, by an accumulation of pus below it, be pushed high up in the thoracic cavity, thus simulating empyema or pyopneumothorax. To arrive at a correct diagnosis we are then bound to take many other points into consideration, and it seems to be the universally accepted view that it is chiefly the ætiology which decides between empyema and subphrenic accumulation of pus. Leyden,‡ to whose classical study of the clinical features of subphrenic abscess we owe

our main knowledge on this subject, says, among other things, that if in a patient with symptoms of effusion in the thoracic cavity there has never been during, or at least not in the beginning of, the disease any cough or other signs indicating trouble in the supraphrenic cavity, and if, on the other hand, the present ailment was preceded by disturbances in the abdominal organs, we are justified in diagnosing the effusion as a subphrenic abscess. This statement implies, of course, that the primary causes giving rise to the always secondary subphrenic abscess are exclusively located within the abdominal cavity. Leyden established his diagnostic remarks on the basis of only ten cases. Since then the number of the reported cases of subphrenic abscess has increased at least tenfold. Some of the diagnostic points put forward by Leyden have not been confirmed, but there seems to be a consensus of opinion as to the decisive value of the ætiology in the diagnosis of subphrenic abscess.

It is not my purpose to deny this value, but it has occurred to me that unrestricted reliance upon the ætiology, like unconditional reliance upon the physical signs, must lead in one case or other to a wrong diagnosis. My objections to the unexceptional reliance upon the ætiology for the diagnosis between empyema and subphrenic abscess are twofold. In the first place, there are a few cases of subphrenic abscess the primary cause of which is located in the cavity above the diaphragm. Secondly, there are cases of intrapleural effusion with an exclusive and pronounced abdominal history. My attention was drawn to these exceptions by the observation of a case of the kind mentioned first. Lobar pneumonia was the precursor of a subphrenic abscess. Permit me to present to you a brief report of this case:

Alfred A., a perfectly healthy child of twenty-six months, became sick with high fever. The onset was abrupt. During the first five days there were present only general symptoms usually accompanying high fever. The fever had a continuous character—105° in the morning; pulse, 130; respirations, 32—without characteristic features. No cough. On the sixth day physical signs indicating pneumonic infiltration appeared in a small area beneath the right clavicle. Dullness, tubular breathing, and bronchophony were present. On the ninth day the same physical signs appeared also in the back, in the right fossa supraspinata. Neither in the back nor in the front did the signs of consolidation spread downward. The pneumonic fever disappeared gradually by lysis, the decrease beginning on the fourteenth and ending on the sixteenth day of the disease. For the next ten days there was no more fever, and the child seemed to recover perfectly, though the resolution of the infiltrated parts of the lungs seemed to progress slowly. On the twenty-seventh day there was a new sudden onset of high fever, the cause of which could clearly be seen on the following day; there was a distinct pneumonic invasion in the lower lobe of the right side. In the area below the right scapula there were moderate dullness, distinct tubular breathing, bronchophony, ægophony, and marked increase of the vocal fremitus. The new pneumonic attack terminated in a crisis on the fifth day, or the thirty-second of the entire disease. For the next three days the child seemed to be in a normal condition. On the fourth day, however, a new morbid status appeared. The child became restless, complained of a pain, re-

\* Read before the Association of American Physicians at its eighth annual meeting, on June 1, 1893.

† Wintrich, in Virchow's *Handbuch der speziellen Pathologie*.

‡ E. Leyden. Ueber Pyopneumothorax subphrenicus. *Zeitschrift für klinische Medicin*, Bd. i, p. 320.

peating often "Here" while pointing to a spot in the right hypochondrium, and was afraid of being moved. The tongue became coated again, and the body was often covered with perspiration. The temperature rose to  $105^{\circ}$  in the afternoon, while there was a full remission in the morning. There was a moderate swelling of the spleen, and the liver could be felt protruding below the ribs. The former dullness below the right scapula disappeared in the upper part of the area, while it turned into flatness in the lower part of it. Here neither respiratory murmurs nor the vocal fremitus could be noticed. On the sixth day of the new state (forty-second of the entire disease) I made an exploratory puncture in the eighth intercostal space and an odorless pus was obtained. The diagnosis of empyema thus being apparently well assured, surgical treatment was resorted to. On the following day (the forty-third of the entire disease), after making a long incision on the eighth rib, beginning at the median axillary line and extending backward, I removed a piece of the rib about an inch and a half long. Before opening the pleura I made another exploratory puncture and withdrew pus again. After opening the pleura, however, I was greatly surprised to find very little pus in the pleural cavity, the entire amount being hardly more than half a teaspoonful. The aperture was wide enough for me to see distinctly the perfectly motionless diaphragm bulging high up into the thoracic cavity. Exploration with the finger revealed that the lung was not collapsed, the diaphragmatic side of the lower lobe apparently being still somewhat consolidated; there were no adhesions or encapsulated empyema, but distinct fluctuation could be felt through the diaphragm. In a word, I had before me a subphrenic abscess. After a close examination, I discovered in the diaphragm a very small perforation not larger than a pin's head leading into the abscess. The opening was close to the ninth rib in the posterior axillary line. Apparently through this perforation a few drops of matter found their way into the pleural cavity. I then dilated this opening, introduced a thick rubber tube into the abscess cavity, and by massaging the diaphragm succeeded in removing the entire pus through the tube, thus avoiding the invasion of the matter into the pleural cavity. By digital examination of the abscess cavity I ascertained that there were apparently no pus-containing pockets in the neighborhood, and that the surface of the liver was perfectly smooth. The abscess cavity seemed to be closed on all sides by firm adhesions. I then washed out the pleural as well as the abscess cavity, introduced drainage-tubes into both, and applied a bandage in the usual manner. No more matter came through either of the tubes. On the third day after the operation I removed the tube from the pleural cavity, and on the fifth day the opening leading into it was perfectly closed and there was distinct vesicular breathing with no signs of pneumothorax. The drainage-tube below the diaphragm I did not remove for nearly three weeks, fearing there might be, after all, another abscess hidden in the neighborhood of the first one. The reason for this suspicion was the continuation of the fever. In the first three days after the operation the fever became even continuous in character,  $104^{\circ}$  in the morning. On the fourth day the former hectic state reappeared, the temperature being  $105^{\circ}$  in the evening and a full remission occurring in the morning. No physical signs whatsoever indicated the presence of another gathering; the pain disappeared, the liver returned to its normal place, and only the spleen still remained somewhat enlarged. Remembering my experience with some obscure cases of persistent hectic fever after pneumonia which had yielded abruptly to large doses of quinine, I resorted finally also in the present case to this remedy. The result was surprising; after administering for two days fifteen grains of quinine a day, the fever disappeared and the child recovered rapidly.

I hardly need to say that there is a possibility that the rapid recovery was merely coincidental to the administration of quinine. In the case of subphrenic abscess operated upon successfully by Monastyrski\* the fever continued also for some time, but then disappeared without any medication. Twenty-two days after the operation the wound was healed and the child was thenceforth in every respect in a normal condition. The entire disease lasted sixty-five days.

Let us recapitulate briefly. The disease began with croupous pneumonia which was limited to the right apex. After a slow defervescence and a protracted resolution the pneumonic infection befell also the lower lobe of the same side, which had a short duration and terminated in a crisis. There can be no doubt as to the pneumonic nature of the second attack. The sudden rise, the continuity, and the critical fall of the fever, the moderate dullness, the bronchial breathing, and the increased vocal fremitus—they all speak in favor of pneumonia. Moreover, by the digital exploration I felt the remnants of the consolidation within the lower lobe. Both attacks may well be termed migratory pneumonia. A few days after the termination of the last pneumonic attack a morbid state gradually made its appearance which had all the characteristics of a metapneumonic empyema. The operation revealed that all the physical and rational symptoms were due to a subphrenic abscess, while the pleura was intact.

We see here a subphrenic abscess following closely croupous pneumonia in a patient who at no time had shown any abdominal symptoms. There can be hardly any doubt that the preceding pneumonia was the cause of the consecutive subphrenic abscess. The only other possible explanation would be to say that the immediate development of the abscess after pneumonia was only a matter of accident, and that the real primary cause was unknown. This is far-fetched and unreasonable, and we might apply such objections to all kinds of sure causes established by the inductive method. In my opinion, there is practically only one possible explanation, and that is that the preceding pneumonia was the cause of the consecutive abscess.

The question arises whether my observation presents a type, or the case was only an isolated and accidental one. A close examination of the literature has brought to light at least one other similar case. It was reported by Gaehde† in 1880, nearly simultaneously with Leyden's publication. It has escaped the general notice. Here is the case in brief:

A man of twenty-eight had pneumonia of the lower lobe of the right side, which terminated in a crisis. A few days after exquisite symptoms of empyema made their appearance in the same side. Paracentesis with resection of a part of the sixth rib was performed, but only a small quantity of pus escaped. The diagnosis was made that there might be an encysted empyema below the opening, and a spontaneous evacuation into the upper pocket was expected. In the days following, a considerable discharge of matter, indeed, took place, and the patient was recovering satisfactorily when he died suddenly. It was one of

\* Monastyrski. *St. Petersb. medicin. Wochenschrift*, 1889, p. 53.

† F. Gaehde. Ein Fall von Pneumonie mit nachfolgendem Emphyem. Operation, perituberculärer Abscess, plötzlicher Tod. *Berliner klin. Wochenschr.*, 1880, p. 134.

those obscure, accidental deaths occurring now and then in the course of pleurisy. The autopsy revealed the surprising fact that the cut was made right through the diaphragm and the pus was coming from below it.

The type of subphrenic abscess apparently was yet unknown to the author and he speaks indefinitely of perihepatic abscess. Here, then, we have a distinct case of subphrenic abscess following pneumonia, and here also the pneumonia was apparently the cause of the consecutive abscess.

I have met in the literature with another case of subphrenic abscess following pneumonia, but the causal connection between the two is less sure. The case is reported by Jahn,\* 1888:

A soldier had croupous pneumonia of the lower lobe and the defervescence took place on the sixth day. Three weeks later, while he was still in the hospital, a new sickness began with a chill in the onset and there was pain in the right side; the spleen and liver were enlarged and a continuous fever lasted twelve days. The diagnosis was typhoid. A few days after defervescing continuous fever began again, but lasted only two days, when it turned into a prolonged remittent and intermittent type. At the end of the third month thoracocentesis in the ninth intercostal space was performed. The pleural cavity was found to be empty and the pleura smooth, the diaphragm motionless, and beneath it an abscess. It was evacuated and the patient recovered within six weeks.

Jahn himself is not very sure about the diagnosis of typhoid, but he is loath to believe that the abscess was originated by the preceding pneumonia on account of the absence of any kind of pleurisy. We shall soon see that this latter point is rather favorable to the development of a subphrenic abscess, and I am indeed inclined to believe that in this case also the abscess was caused by the preceding pneumonia and that the second attack of continuous fever was not typhoid, but the first stage of the developing subphrenic empyema; the pain in the side and the enlarged liver rather favor this theory. At the same time I must say that another hypothesis is also admissible—viz., that the convalescing patient became indeed infected with typhoid by coming in contact with typhoid patients in the hospital, and that the typhoid then might have been the cause of the abscess.

Leaving this last case, as a doubtful one, out of consideration, we have then at least two cases of subphrenic abscess which most certainly were caused by pneumonia. Are those two cases actually the only ones? I am inclined to doubt this the more as an analysis of these cases will show that even they were discovered only accidentally. If we take first Gaehde's case, we see that the patient was operated on for empyema and that the real state was not recognized even at the operation. If the patient had not died accidentally he might have recovered, as there was a wide opening in the diaphragm and the pus had a free outlet. The favorable condition of the patient justified indeed the hope of the surgeons for his recovery. Now, if this patient had recovered nobody would have ever

detected that it was not a case of empyema. Similar circumstances we meet with in my own case. The diagnosis of empyema was well founded and I operated for it pretty early. I found a small perforation of the diaphragm and only a few drops of pus within the pleural cavity. If I had waited longer with the operation, as is sometimes advised, at least in cases of metapneumonic empyemata, the perforation would have meanwhile probably become large and there would have been a sufficient quantity of matter within the pleural cavity not to disturb my original belief that I was indeed dealing with empyema. Nevertheless, the little patient would even then have stood a good chance of recovery, since the ample perforation in the diaphragm would have permitted the abscess to empty its entire contents into the pleural cavity, and from there the pus would have made its further escape through the wide wound. Thus in my case also a recovery could have happened without my knowing that it was in fact not empyema, but rather a subphrenic abscess. But if these cases have been discovered only by mere accident, how can we insist upon it that those are actually the only ones that ever occurred? On the contrary, it seems very probable to me that many cases of subphrenic abscess after pneumonia have been mistaken for metapneumonic empyema. There is no symptom capable of serving as a reliable means for a diagnosis between subphrenic abscess and metapneumonic empyema; but even if there had been such a reliable guide, who has ever seriously taken the possibility of a subphrenic abscess into consideration while studying the symptoms of metapneumonic empyema? Thus the want of a larger number of similar cases does not speak against the frequency of their actual occurrence, while the accidental detection of the two reported cases decidedly justifies the supposition that more cases of this kind actually occur, but remain undiscovered. By analysis of the circumstances in my own case, however, I am forced even to a still further step; I am forced to the assumption that subphrenic abscesses after pneumonia not only occur oftener, but that they even present a legitimate type; the abscess below the diaphragm is as much of a natural, though may be a rare, sequela to lobar pneumonia as is the empyema above the diaphragm. There can be no question that the subphrenic abscess in my case was caused by the preceding pneumonia. But this can only mean that the abscess below the diaphragm was caused by the pus-producing organisms which are present in pneumonic infiltrations. I did not make any bacteriological examination of the pus in the abscess, as I was not prepared to find anything else than an ordinary metapneumonic empyema, the bacteriology of which has been sufficiently studied by Netter and others. The organisms of the abscess were probably the same which usually are found in metapneumonic empyemata—viz., *Pneumococcus lanceolatus* and *Streptococcus pyogenes*. These organisms, we have to assume, passed directly from the pneumonic lesion in the lungs into the space below the diaphragm through the lymph channels of the latter, which are, according to the studies of Ludwig and Schweigger-Seydel,\*

\* E. Jahn. Subphrenischer Abscess bei rechtsseitiger Lungenentzündung, etc. *Deutsche med. Wochenschr.*, 1888, p. 1042.

\* Ludwig u. Schweigger-Seydel. Ueber das Centrum tendineum des Zwerchfells. *Arbeiten der physiologischen Anstalt zu Leipzig*, 1866.



quite wide and well shaped. The location of the pneumonia in the lower lobe close to the diaphragmatic surface was one of the favorable conditions for such a direct transmigration. And it is my belief that the absence of any pleuritic inflammation disclosed at the operation was another point favorable to the passage of the organisms through the lymph channels of the diaphragm. If the migration of the organisms from the pneumonic focus had been preceded by inflammation of the diaphragmatic pleura of any kind, the organisms would have been prevented from passing through the lymph channels, as the stomata on the thoracic side of the diaphragm would have been obliterated by fibrin. The organisms would thus have been retained on the inflamed pleuritic surface, and the result would probably have been a diaphragmatic empyema. In Gaehde's case there is no remark as to the condition of the diaphragmatic pleura, but Jahn reports expressly that the pleura did not show any kind of pleuritic inflammation. It was just this point, as we have mentioned above, which made Jahn disbelieve that the pneumonia was the cause of the subphrenic abscess in his case; and I think just the contrary—that the absence of inflammation, at least in the diaphragmatic part of the pleura, is a necessary link between pneumonia and subphrenic abscess.

To state my opinion more precisely, I shall sum up as follows:

The migration and deposition of the organisms of pneumonia in the adjacent spaces is the cause of the formation of a metapneumonic abscess which may be then located either above or below the diaphragm. When the pneumonia is localized near the costal or the intralobar surfaces of the lungs, the migration of the organism results probably always, or nearly always, in supraphrenic empyema. But if the pneumonic focus is located close to the diaphragmatic surface of the lungs, the result depends upon the state of the diaphragmatic pleura. If this is not inflamed and the stomata of the lymph channels of the diaphragm are not occluded, the migrating organisms may find their way directly into the space below the diaphragm and the result will be a subphrenic abscess. But if the migration was preceded by some inflammation, thus occluding the channels leading to the space below the diaphragm, the organisms will remain above the diaphragm, thus forming a supradiaphragmatic empyema.

I have here presupposed that the organisms can easily pass through the lymph channels of the diaphragm in the direction from the thoracic to the abdominal side of it. This would seem to be in contradiction to the well known experiments of v. Recklinghausen,\* who observed the passage of different kinds of corpuscular elements from the abdominal cavity through the lymph channels of the diaphragm to the thoracic surface of the same, but did not succeed in observing the passage of any elements from the thoracic side to the abdominal surface of the diaphragm. Von Recklinghausen himself, however, explains this failure by the fact that the introduction of any kind of foreign bodies

into the pleural cavity produces immediately a pleuritic inflammation, thus obturing the stomata, and he does not deny the possibility that the undisturbed stomata and lymph channels may well serve as a thoroughfare even in the direction from the thoracic to the abdominal cavity. Perhaps new experiments with micro-organisms will furnish indeed better results. Above all, we should not forget that in the case of the transmigration of the organisms from the lungs through the diaphragm, this latter, in contrast to the artificial experiments, remains in close contact with the diaphragmatic surface of the lungs and the organisms may just pass over from the stomata of the lungs into the stomata of the diaphragm without coming at all in contact with any pleuritic surface.

Thus there are on record at least two, and perhaps three, cases of subphrenic abscess the primary cause of which was lobar pneumonia, and it is probable that in reality more cases of that kind occur but pass unrecognized, as metapneumonic empyemata. These cases form, at any rate, a contrast to the prevailing view that the primary causes of subphrenic abscess are always located within the abdominal cavity. Aside from this group of metapneumonic subphrenic empyemata, we find in literature three more cases of subphrenic abscess the primary cause of which is tabulated as being located above the diaphragm. In one case (Falkenheim)\* we read that a subphrenic abscess was caused by a tuberculous cavern. But we can hardly put this abscess in line with the others. The cavern caused empyema which perforated the diaphragm and thus produced, among other abscesses within the abdominal cavity, also an accumulation of pus between the liver and the diaphragm. In two other cases (Herrlich, † Nowack ‡) endocarditis is noted as the cause of the subphrenic abscess. But here the immediate cause of the subphrenic abscess was indeed located within the abdominal cavity, as it was in fact the abscess or the infarct of the spleen which caused the subphrenic abscess, though the abscess and infarct of the spleen in their turn were caused by the preceding endocarditis.

A case with quite a puzzling history was recently reported from the Greifswald surgical clinic.<sup>§</sup> The cause of the subphrenic abscess was not located in either of the body cavities. Paronychia in a boy of seventeen was treated with a radical incision and smooth recovery followed; nineteen days after incision a chill introduced symptoms of suppurative pleurisy; the diagnosis was indeed empyema and Helferich resected the ninth rib, but the presence of the spleen in the abscess cavity proved that the abscess was located below the diaphragm. Rapid recovery followed. The report is very short, but from the heading it is to be seen that Helferich considers the preced-

\* Falkenheim. *Mittheilung aus der medicin. Klinik zu Königsberg*, 1888.

† Herrlich. Ueber subphrenische Abscesse. *Deutsche mediz. Wochenschr.*, 1886, p. 139.

‡ Nowack. *Schmidt's Jahrbücher*, Bd. cxxxiii, pp. 73 and 200.

§ H. Helferich. *Jahresbericht über die chirurgische Klinik der Universität Greifswald während des Etatsjahres 1889 und 1890*, Leipzig, 1892.

\* V. Recklinghausen. Zur Fettresorption. *Virchow's Archiv*, Bd. xxvi, p. 172.

ing paronychia as the primary cause of the subphrenic abscess. The connection is quite obscure; but there was, perhaps, an infarct of the spleen; there is nothing in the report to the contrary. We could then assume that endocarditis was the missing link between the paronychia and the subphrenic abscess.

While in the foregoing I have discussed the occurrence of cases of subphrenic abscess preceded not by abdominal, but by intrathoracic ailments, I am now going to point out briefly such cases of empyema preceded exclusively by pronounced abdominal symptoms. I shall mention in the first place empyemata originating from gastric ulcer perforating directly into the pleural cavity. Such a case was reported recently by v. Koegerer.\* There were all the physical symptoms of pyopneumothorax with no history of lung trouble, but with a sure proof of the presence of a simple gastric ulcer. According to the prevailing view, this would have been a case of pyopneumothorax subphrenicus. The autopsy proved that the ulcer broke directly into the pleural cavity after some adhesions had been formed between the stomach and the diaphragm; the entire air-containing abscess was above the diaphragm and not below it. There are more cases of this kind in literature, but I shall refer only to one other, which, for the sake of historical correctness, deserves special notice. It is Sturges's† case, which is quoted by Pfuhl‡ as a case of pyopneumothorax subphrenicus, and is one of the ten cases collected by Leyden. By reading Sturges's original article I have found that his diagnosis was that the source of the pyopneumothorax was located in the stomach and not in the lungs; but he does not maintain that the pyothorax itself was located below the diaphragm. If his diagnosis was correct, it was then a case like the one reported by v. Koegerer and not a subphrenic abscess.

Aside from this kind of cases there are those empyemata which accompany or follow several acute abdominal troubles like typhoid fever, general or circumscribed peritonitis, etc. In the complications or sequelæ of these ailments we have physical signs of effusion in the lower part of the thorax and a history of abdominal trouble. According to the view set forth by Leyden, we must expect in all such cases to find a subphrenic abscess; still, we find actually only empyemata. I shall add, however, that in some instances the diagnosis of empyema in these cases might be indeed incorrect. This may be illustrated by a quite recent communication from the Strassburger clinic. In the *Berliner klinische Wochenschrift* for April 10, 1893, Weintraud § reports the following case as *Typhus-Empyem*—i. e., empyema following typhoid.

In a patient with a moderate typhoid some dullness in a small area in the back of the thorax was noticed, which was ascribed to pulmonary hypostasis. But as the dullness on the

left side did not fully disappear even after the defervescence took place and the patient recovered but slowly, an exploratory puncture was made in the dull area which brought out pus containing a large number of the *Bacillus typhosus*. Two days later alarming peritonitic symptoms set in, but disappeared after eight days' treatment with opiates. A few days later the patient recovered with astonishing rapidity.

Weintraud diagnosticates the case as empyema without any discussion, and remarks concerning the spontaneous recovery that the evacuation of the empyema through the lungs would not have escaped observation. There is no mention of the behavior of the intestines. It seems to me that this was rather a case of subphrenic abscess than empyema. The preceding typhoid, the smallness of the dull area, the subsequent abrupt appearance of peritonitis without any plausible cause, then again the spontaneous and quite rapid recovery, and perhaps even the presence of the bacillus of Eberth in the abscess, speak in favor of subphrenic abscess following typhoid. The abscess broke first into the peritoneal cavity and later found its way into the intestinal canal, thus effecting a spontaneous and rapid recovery. In one of Leyden's cases the subphrenic abscess found its way out also through the intestinal canal. If Weintraud had only thought of subphrenic abscess, possibly he would have come to the same conclusion.

Aside from the theoretical interest, there is a great practical importance attached to the diagnosis in such cases. While Weintraud, believing that his case was one of empyema and that the recovery occurred by absorption, recommends not to be too ready with the radical operation, I shall, on the contrary, take his case as a proof that even the most innocent-looking abscess may suddenly break into the abdominal cavity and produce general peritonitis, of which only a very small percentage of cases will result in recovery by emptying of the entire abscess into the intestinal canal!

66 EAST 124TH STREET.

## A STUDY ON THE ETIOLOGY OF EXUDATIVE PLEURITIS.

By T. MITCHELL PRUDEN, M. D.,

PROFESSOR OF PATHOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS,  
COLUMBIA COLLEGE, NEW YORK.

ONE of the most striking side lights which recent bacterial studies have thrown upon disease has made it evident that certain pathogenic micro-organisms, although usually associated with some special form of disease whose lesions they dominate and more or less distinctly characterize, are yet capable under a variety of conditions of causing less well defined and less distinctive forms of inflammatory lesions. Thus, while the action of the tubercle bacillus is most characteristic in the development under its influence of tubercle tissue, we have recently learned that under a variety of conditions it may be markedly pyogenic.

The pneumococcus, too, at first associated solely with the lesions of acute lobar pneumonia, may, as we now see, in addition to or apart from its own proper mischief, determine now an exudative meningitis, now a pleurisy, and again a simple phlegmon. Similar versatility is possessed

\* V. Koegerer. *Pyopneumothorax sinister ex ulcere ventriculi perforante*. *Prager mediz. Wochenschr.*, 1890, No. 25.

† Sturges. *Lancet*, 1874, p. 196.

‡ Pfuhl. Ein oberhalb der Leber gelegenes periton. Exsudat. *Berliner klin. Woch.*, 1872.

§ Weintraud. Ein Fall von Typhus-Empyem. *Berliner klin. Woch.*, 1893, No. 15.

by the *Bacillus typhosis*, the *Streptococcus pyogenes*, and other pathogenic germs. More striking still are the recent revelations regarding the *Bacillus coli communis*, our universal comrade in health, but capable, as it would seem, when out of place and under abnormal conditions, of exciting serious and even fatal inflammatory processes. The practical bearing of this increase of scope in our knowledge is well illustrated in the recent studies on the ætiology of pleurisy.

Bacteriologic examinations have now been made in so many cases of exudative inflammation of the pleura, that our knowledge of its ætiology rests in large part upon a definite and firm basis, while much light has been thrown upon its prognosis and some upon certain phases of its treatment.

The general results of these bacteriologic studies may be formulated in a variety of ways. It is most common, however, to divide the cases of pleuritis into two classes, dependent upon the morphological characters of the exudate—first, those in which the exudate is serous or sero-fibrinous; and second, those in which it is purulent—and record the results of the examination of these separate classes. It is evident that the line of demarcation between these two forms of exudate is not a sharp one, and that sometimes one may appropriately recognize a sero-purulent exudate, and, further, that any form of exudate may be more or less mixed with blood—hæmorrhagic—or may be decomposing and putrid.

PREVIOUS STUDIES.—The most extensive study and analysis of cases has been made by Netter.\* Important studies with the use of modern technique have also been made by Levy,† Koplik,‡ Prince Ludwig Ferdinand,§ Pansini,|| and others. To these articles I refer the reader for details and a fuller bibliography.

Although different observers differ somewhat in detail, the general results of this long series of studies may be fairly summarized as follows:

*Serous Exudates.*—The serous or sero-fibrinous effusions in inflammations of the pleura do not as a rule contain bacteria. It is believed by many observers that a large proportion of these sero-fibrinous effusions in which bacteria are not demonstrable are of tubercular origin. Others believe this latter statement to be too sweeping, and are convinced that among the cases of what is commonly diagnosed as simple acute pleurisy with a sero-fibrinous exudate, a very considerable proportion show no bacteria, and still are not tubercular in origin. This discrepancy in belief is partly due to technical difficulties in the way of bacterial examination for tubercle bacilli, and partly to the lack in most cases thus far examined of such unimpeachable evidence in this respect as the autopsy alone can furnish.

Tubercle bacilli have actually been found in the sero-fibrinous exudate in but very few cases, the tubercular origin having been inferred in most cases from hereditary antecedents and the personal history previous or subsequent to the attack of pleurisy. Clinical data have been thought to indicate\* that from forty to eighty per cent. of the so-called "simple" or "essential" pleurisies with sero-fibrinous exudate are of tubercular origin.

Pansini† has emphasized in this connection the importance from the technical standpoint of examining larger quantities of exudate than are obtained by the usual exploratory puncture with the hypodermic syringe and the use of animal inoculations, since without these precautions tubercle bacilli may readily escape observation. His own studies made on large quantities of exudate showed in fifteen sero-fibrinous exudates the tubercle bacillus in six; pneumococcus (*Micrococcus lanceolatus*‡) in three; streptococcus or pneumococcus in one; and in five no bacteria.

Prince Ludwig Ferdinand, in nine cases of pleurisy with a sero-fibrinous exudate, found in the latter the pneumococcus in two; *Staphylococcus pyogenes* in two; no bacteria in five; four of the negative cases were, however, believed to be tubercular.

Netter concludes, from morphologic studies and inoculations, that the tubercle bacillus is present in at least forty per cent. of sero-fibrinous exudates in pleurisy, and is more common than in empyema.

It evidently is still reserved for further and more extended studies to establish the relative frequency of tubercular inflammation as a causative factor in the sero-fibrinous phases of pleurisy. It is certain that tubercular pleurisy may exist with a sero-fibrinous exudate, and neither the morphological examination nor animal inoculations show the presence of the tubercle bacillus in the exudate.

In a few cases *Staphylococcus pyogenes aureus*, or *albus*, or both, have been found in serous exudates, and it has been shown that exudates containing these germs do not necessarily become purulent. In a large number of cases the *Micrococcus lanceolatus* (pneumococcus) has been found in serous effusions, and its presence does not indicate that the effusion will become purulent, though it may do so. *Streptococcus pyogenes* has been found in a considerable number of simple serous effusions. When present, the exudate is very apt to become purulent, although a few cases have been studied in which it has not done so.\* The pneumococcus may be found in serous effusions in association with the *Staphylococcus pyogenes*, or other germs.

In Netter's experience the exudate in metapneumonic pleurisy is more often purulent than sero-fibrinous, his cases showing the proportion of eighteen to four. The results of

\* Netter. *Extrait des bull. et mém. de la Soc. méd. des hôpitaux de Paris*, 3me série, 6me année, 1889; *ibid.*, Séance du 16 mai 1890. *Soc. méd. des hôpitaux*, April 7, 1892. *Traité de médecine*. Charcot et Bouchard, tome iv, 1893.

† *Archiv für exp. Pathologie*, etc., Bd. xavii, 1891.

‡ *Archives of Pediatrics*, October, 1890.

§ *Deutsches Archiv für klin. Medizin*, Bd. I, 1892.

|| *Giornale internazionale delle scienze mediche*, 1892; *Rev. Centralblatt für allg. Pathologie*, etc., Jan. 15, 1893.

\* Fiedler. Ueber die Punction der Pleurahöhle in Herzbeutel. *Volkmann's Klin. Vorträge*, 1892.—BARTS. Remarks on the So-called Simple Pleuritic Effusions. *Brit. Med. Journal*, May 10, 1890.

† Pansini. *Loc. cit.*

‡ *Micrococcus lanceolatus* will be used in this article as a synonym of *Diplococcus pneumoniae* and pneumococcus—meaning thereby the pneumococcus of Fraenkel and Weichselbaum.

§ Goldscheider. *Zeitschrift für klin. Medizin*, Bd. xxi, Heft 3 und 4, p. 363, 1892.



other observers show less tendency to the formation of pus in the presence of the *Micrococcus lanceolatus*.

It would thus appear that, while the sero-fibrinous exudates in inflammation of the pleura do not, as a rule, show the presence of bacteria, they may contain either the *Micrococcus lanceolatus* or *Streptococcus pyogenes*, or, more rarely, *Staphylococcus pyogenes*, and that, when these germs are present either alone or in association, the exudate may—though it does not always—continue sero-fibrinous; but that when the *Streptococcus pyogenes* is present, it is apt to become purulent. Further, sero-fibrinous exudates containing no bacteria may, in a considerable but not yet definitely determined proportion of cases, be associated with tuberculosis.

*Purulent Exudates.*—*Purulent exudates, as a rule, contain bacteria.* The bacteria most commonly found in purulent exudates are the *Micrococcus lanceolatus* (pneumococcus), *Streptococcus pyogenes*, *Bacillus tuberculosis*, *Staphylococcus pyogenes*, and these in varying associations. The typhoid bacillus has been found in empyema accompanying typhoid fever; but under these conditions the *Staphylococcus pyogenes* may be found, or may alone be present.\*

The tubercle bacillus may be associated with one or other of these germs. The *Staphylococcus pyogenes* was found in Netter's analysis of one hundred and fifty-six cases of empyema twenty-one times, in fifteen of which it was associated with other pathogenic forms. The *Streptococcus pyogenes* and the *Micrococcus lanceolatus* are the germs most frequently found in purulent pleuritic exudates. Various forms of saprophytic bacteria have been found in putrid purulent exudates alone, or in association with the ordinary pyogenic germs.

The relative frequency with which the more common forms of pathogenic bacteria occur in empyema it is yet too early to definitely state.

Koplik † found, in twelve cases of empyema in children, the *Micrococcus lanceolatus* in seven; *Streptococcus pyogenes* in three; *Staphylococcus pyogenes aureus* in one; *Bacillus tuberculosis*, with streptococcus, in one.

Pansini ‡ found in eight cases of empyema *Micrococcus lanceolatus* in two; tubercle bacillus in two; *Streptococcus pyogenes* in one; *Staphylococcus pyogenes* in one; *Micrococcus lanceolatus*, with the tubercle bacillus, in one; and in one case no bacteria at all.

Ludwig Ferdinand § found in twelve cases of empyema *Micrococcus lanceolatus* in two; *Streptococcus pyogenes* in five (two fatal); tubercle bacilli in two (both fatal); *Micrococcus lanceolatus* and streptococcus in two (one fatal); streptococcus with *Staphylococcus pyogenes* in one.

Netter's || analysis of one hundred and nine cases of empyema shows that the *Streptococcus pyogenes* was present in about forty-four per cent., the pneumococcus in about twenty-six per cent., streptococcus and pneumococcus associated in about three per cent, *Staphylococcus pyogenes* in about two per cent., while the remaining twenty-five per

cent. were tubercular in origin or putrid, the latter form being comparatively infrequent.

While the streptococcus appears to be most frequently present in the empyema of adults, the pneumococcus, according to Netter, preponderates in children.

The pus in empyema has been found to contain in scattering cases *Actinomyces*, *Micrococcus tetragonus*, *Bacillus coli communis*, and *Spirochete denticola*. Various saprophytes have been found, especially in decomposing and foul-smelling exudates.

The figures of Netter show that empyema, aside from the cases which are tubercular or putrid, is associated with pneumonia in about 43.75 per cent. of the cases. When thus associated the pneumococcus is present and found alone in the majority of cases. It may, however, be associated with *Streptococcus pyogenes*, *Staphylococcus pyogenes*, and the *Bacillus pyocyaneus*, while various saprophytic forms have been found.

Empyema with pneumococcus in the exudate may occur without evident association with lobar pneumonia.

It is evident, from this résumé of observations upon the bacteria present in inflammatory pleuritic exudates, that a very solid basis of fact is already laid for an understanding of the ætiology of the inflammations of the pleura. Our knowledge of the action on the body of the pathogenic germs most commonly found in the exudates—namely, the pneumococcus, the streptococcus, the tubercle bacillus, and the staphylococcus—justifies us in the inference that these germs, when present, are largely concerned in inducing the disease and its lesions. It is evidently necessary, however, to examine bacteriologically a great many more cases, so that our knowledge may become still more extended and precise, and our inferences bearing on prognosis and treatment more reliable.

THE WRITER'S STUDY.—Two purposes were held in view in the bacterial examinations of pleuritic exudates, extending over two years, which this paper records: First, the accumulation of facts regarding the forms of bacteria present in the exudates; and, second, the determination whether or not a systematic morphologic and biologic examination of pleuritic exudates drawn for this purpose promised to be useful in the routine study and treatment of patients suffering from either sero-fibrinous pleurisy or empyema.

*Technique.*—Bacteriologic examinations of pleuritic exudates have been made in such large numbers and under such various conditions that we know the "experimental error" to be rather large and of considerable significance. It has been frequently shown, for example, that the examination of a small portion of the exudate drawn in the usual way by the hypodermic syringe may give a negative result both in the morphologic and biologic analysis, while a larger quantity may show the presence of living germs. Under the ordinary conditions of research, then, the larger the quantity of exudate which can be subjected to study by sedimentation and the use of the centrifugal machine, the better. In the present study, however, it was thought best to limit the quantity of exudate examined to the few cubic centimetres or less which the usual exploratory puncture gives, since

\* Weintraud. Ein Fall von Typhus-Empyem. *Berliner klin. Woch.*, April 10, 1893. Levy, loc. cit., p. 374.

† Loc. cit.

‡ Loc. cit.

§ Loc. cit.

|| *Traité de médecine.*

one main purpose of the work was to learn the limitations and value of such a method. Furthermore, we have always to remember that in exudates examined with negative results, the germs may have been present, but are now dead, and so fail to grow, and that they may be so disintegrated as to escape detection by the morphologic examination. While this condition is probably not of frequent occurrence, its possibility should be borne in mind and both morphologic and biologic methods in all cases practiced. The pneumococcus is especially prone to die early.

The exudates were in all of my cases examined morphologically—first, for the presence of the tubercle bacillus; and, second, for other germs. The routine staining for the latter purpose was with an aqueous solution of fuchsin or Loeffler's alkaline methylin blue. In the latter half of the studies a special staining for the pneumococcus was made in all cases by Welch's method,\* which I find of the greatest value in doubtful cases. Cultures were made on Petri's plates on glycerin agar, and the growing forms identified in the usual way by their morphologic, biologic, and, when necessary, pathogenetic characters.

*Number and Character of Cases Studied.*—I record here the result of the morphologic and biologic examination of *forty-five cases of exudative pleuritis*.† A very brief résumé of the results will suffice for the purpose in view in this paper.

*Sero-fibrinous Pleuritis, Twenty-one Cases.*—These may be grouped as follows:

1. *Twelve cases of simple uncomplicated sero fibrinous pleuritis*, all giving in general the story of an acute attack, usually after exposure, with chill, pain in the side, fever, and the usual physical signs of pleural effusion. *In none of these cases did the exudate reveal bacteria of any kind either by the morphologic or biologic examination.* Seven of these cases were aspirated, the remainder not. All ended in complete recovery.

2. *Six cases of sero-fibrinous pleuritis accompanying or immediately following acute lobar pneumonia* (metapneumonic sero-fibrinous pleuritis). In these six metapneumonic cases the exudate in two only revealed the presence of the *Micrococcus lanceolatus*. The others were sterile. Four of the cases recovered; two died, one from acute endocarditis, one from pericarditis. Neither of these fatal cases were the ones in which the pneumococcus was found in the pleural exudate. Unfortunately, cultures were not made from the heart lesions after death.

3. *Three cases of sero-fibrinous pleuritis in which there was clinical evidence of tuberculosis of the lungs.* In all of these three tubercular cases the exudate was sterile and the

tubercle bacillus was not found by staining. These cases were all discharged from the hospital improved.

*Empyema, Twenty-four Cases.*—These may be grouped as follows:

1. *Eight cases of simple empyema*—that is, cases not associated, so far as could be learned, with any other disease of the lungs or septic process elsewhere in the body.

In these eight cases of simple empyema the exudate showed the presence of *Streptococcus pyogenes* in seven, of the *Staphylococcus pyogenes aureus* in one. These were revealed in every case both by the microscopic examination and by the cultures.

Of the seven streptococcus cases five died; four of these were aspirated; in one, resection of a rib was performed. The remaining two of the streptococcus cases recovered after resection. The staphylococcus case recovered after aspiration.

2. *Eleven cases associated with acute lobar pneumonia* (metapneumonic empyema). Of these eleven cases of metapneumonic empyema, the exudate in nine contained the *Micrococcus lanceolatus* and no other germs. In one the *Streptococcus pyogenes* and in one the *Staphylococcus pyogenes aureus* were alone present.

In the nine cases of this group in which the history is complete, there were seven recoveries and two deaths. Both of the fatal cases were associated with the pneumococcus, and in both was a portion of rib resected. In the seven cases which recovered resection was done in four; three of these were pneumococcus cases, one due to streptococcus. In the cases recovering after simple aspiration two were pneumococcus cases; one was associated with the *Staphylococcus pyogenes aureus*.

3. *One case of empyema associated with pulmonary tuberculosis.* The cultures from this exudate gave a negative result, but very large numbers of tubercle bacilli were revealed by the microscopic examination and no other germs. This case was fatal.

4. *Four cases in which the exudate was fetid.* In the four cases of fetid empyema—all fatal—the examination showed in each several forms of bacteria, mostly bacilli, which were not identified. In one only was the *Staphylococcus pyogenes aureus* mingled with the other forms.

**SUMMARY.**—*In the writer's twenty-one cases of sero-fibrinous pleuritis the exudate revealed bacteria in only two, and in these two cases, which were associated with acute lobar pneumonia, the pneumococcus was the only germ found.*

*In the writer's twenty-four cases of empyema the exudate revealed bacteria in all. In the cases of simple empyema the germ most commonly present (in seven out of eight) was the Streptococcus pyogenes. In the cases of metapneumonic empyema the germ most commonly present (in nine cases out of eleven) was the Micrococcus lanceolatus (pneumococcus). In the four cases of fetid empyema various forms of bacteria, mostly bacilli, were found; only once was the Staphylococcus pyogenes aureus present. In the one case of tubercular empyema the tubercle bacillus was alone present.*

*The mortality in the cases of streptococcus empyema was much higher than in those associated with the pneumococcus*

\* This method consists in treating the exudate, dried on the cover glass in the usual way, with glacial acetic acid, which is at once drained off and replaced by anilin-gentian-violet solution, this being drained off and renewed several times until the acetic acid is displaced. The specimen is now washed with a two-per-cent. salt solution in which it may be studied. For further details and the rationale of the method, consult Welch, The *Micrococcus lanceolatus*, etc., *Johanns Hopkins Hospital Bulletin*, December, 1892, p. 128.

† I am greatly indebted for the material used in this study to Dr. Walter James, and to Dr. James Ewing, resident physician to the Roosevelt Hospital.

—five out of eight having died when streptococcus was present, while only two out of eight died when the pneumococcus was present—and in both of these latter fatal cases there was an acute inflammatory heart complication.

REMARKS.—These studies would seem to justify more than most of those already published on the same theme, a belief in the comparatively frequent occurrence of a simple exudative pleurisy with sero-fibrinous exudate which is not tubercular and not demonstrably associated with bacteria of any kind, and bearing a more favorable prognosis than any other form of exudative pleural inflammation.

So far as these studies go, they would tend to confirm the belief that the prognosis in cases in which bacteria are present in the exudate is, as a rule, most favorable in the metapneumonic serous exudates and in the serous exudates which contain only the staphylococcus.

These observations are furthermore in accord with the belief that among the empyemas the prognosis is most favorable in the metapneumonic and staphylococcus forms, less so in the primary streptococcus form, and least in the fetid cases.

It would seem certain that whenever it is practicable a microscopic and biologic examination of a small portion of the exudate, drawn when necessary for the purpose, promises to afford the practitioner valuable hints as to his wisest further procedure. While more accurate results may no doubt be reached by the examination of large quantities of the exudates, it would seem from these studies, as well as from a large number of those which have preceded them, that for routine purposes the use of a few cubic centimetres of exudate, or even less, is capable of giving very useful data.

It is obvious that a combination of the microscopic and biologic examinations is highly desirable in all cases and indispensable in most cases for the determination of bacterial species. On the other hand, the number of species which play the most important part in determining these pleural exudates is limited and largely confined to the pneumococcus, the streptococcus, the tubercle bacillus, and the staphylococcus, so that very often the simple microscopic examination alone of stained specimens gives valuable data.

In this series of studies, in which both microscopic examinations and cultures were made in every case, only twice did the microscopic examination give a negative, when cultures gave a positive result. Three times only, on the other hand, did the cultures fail to elicit a growth of forms which the morphologic examination had shown to be present, and in each of these three cases the germ involved was the *Micrococcus lanceolatus*, which is short-lived and vulnerable and prone to die in exudates as it is in cultures.

So far as they go, the results of this study would seem to confirm the opinion widely held and based on similar studies which have preceded this—namely, that when pleural exudates, either serous or purulent, are found to contain the *Streptococcus pyogenes*, the question of suitable operative procedure is more important and urgent than if the pneumococcus or the staphylococcus alone be present.

## A CURIOUS CONDITION OF THE BLADDER.

ATONY?

By JAMES KENNEDY, M.D.,

SAN ANTONIO, TEXAS.

I HAVE quite recently had under my observation two patients upon whom I had operated and whose bladders presented curious phenomena.

One was a lady upon whom I had performed both trachelorrhaphy and perineorrhaphy, and the other was a man upon whom I had practiced stretching of the great sciatic nerve.

In the case of the woman, when the perineorrhaphy was completed, I introduced an ordinary female catheter with a view of emptying the bladder, but not a drop of urine would flow through the instrument. I withdrew it and introduced an elastic instrument, but still no urine would pass. I then made pressure over the pubes and forced out some three ounces or more. The experiment was repeated twice daily for several days, and although the bladder might contain several ounces of urine and the desire to micturate would be very intense, she could not relieve herself except in the sitting posture (and this was forbidden for the time); neither would any urine find its way through the catheter unless pressure over the bladder was made.

The man's case was very similar, though of shorter duration. I received an urgent call from him on the night of the same day that the operation was performed. He was suffering great agony on account of his bladder and had an intense desire to urinate, but could not do so.

I introduced a metallic catheter without difficulty, but no urine would flow through it, although perfectly open. Flexible and soft-rubber instruments were tried alternately, but did not succeed in relieving him until pressure was made over the region of the bladder. In withdrawing the metallic instrument, a few drops of urine would flow from it, showing without question that the catheter had entered the bladder. His bladder contained, on the occasion of which I speak, fully six ounces of urine, which I succeeded in drawing off only by persistent pressure over that organ. When the pressure was withdrawn the flow ceased and recommenced when pressure was reapplied.

In both of these cases there was evidently a temporary absence of contractility. What produced this condition I am unable to say, unless there was paralysis of the afferent nerves supplying this organ produced reflexly by the traumatism to the parts operated upon. Inhibition was probably not interfered with, but when withdrawn by the patient's will or by the introduction of an instrument, there was no force in the bladder walls to carry out the desire created by the pain occasioned by the pressure of the urine.

The Medico-chirurgical College of Philadelphia.—Dr. L. Webster Fox has been elected professor of ophthalmology.

Change of Address.—Dr. Winslow W. Skinner to Wawbeek, Franklin County, New York.



## UTERINE INERTIA.

A NOVEL TREATMENT WITHOUT DRUGS OR FORCEPS.

By C. C. VAN WATERS, M. D.,

RENSSELAER FALLS, N. Y.

UTERINE inertia includes those cases of partial as well as complete inefficiency on the part of the uterus to expel its contents at the full term of gestation.

This condition may be due to a distended bladder or rectum, some sudden emotion, general debility, or great distention of the uterine cavity, as in dropsy of the amnion.

The customary practice of emptying the bladder and rectum not only removes an obstruction, but has a stimulating effect on the uterus, and may be all that is necessary to do in certain cases.

But in overdistention due to dropsy of the amnion I would first rupture the membranes, as is usual, and then wait a sufficient length of time for the water to drain away, and also for the muscular coat of the uterus to recover from the temporary paralysis to which pressure has subjected it. Again, we must wait in all cases for dilatation of the cervix to take place to a certain extent and some characteristic first-stage pains, so we may know that labor has begun.

Now, all these cases I would treat alike, when practicable, by stimulation. Not by oxytocics, however. The risk in giving these remedies to promote labor is well known, but will bear repeating as follows: Tonic and irregular contraction, thereby endangering the life of the child by prolonged pressure and consequent disturbance of the circulation. Laceration of possibly both cervix and perinaeum of the mother.

But as to the treatment: The beneficial action in constipation of the bowels of a suppository in the rectum is widely known. Why will not the same happy result obtain in uterine inertia from the use of a suppository in the vagina? And what more ready and effective suppository could we have than the hand?

Hence I would say, when the case has so far progressed that we are satisfied it is time for labor to take place and yet uterine inertia has supervened, render the hands thoroughly aseptic by the use of water, soap, and a brush, and afterward a creolin solution. Then, having administered a little chloroform to the woman, thoroughly anoint the hand with vaseline and gradually and slowly introduce it into the vagina.

As soon as it has remained there a few moments pains will commence and increase in severity, in some cases to such an extent that you will soon have to withdraw your hand.

This, which may be termed the suppository method, need not possibly be required on the average in more than one case in five or six. But since it acts by stimulating the natural forces to simply normal activity, it is far better than the use of oxytocics or operative midwifery, and in the cases in which I have resorted to it the results have been gratifying.

**Railway Surgery.**—On the invitation of the New York Medical Society, Dr. R. Harvey Reed, of Mansfield, Ohio, read a paper on this subject before the society on the 14th inst.

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FRANK P. FOSTER, M. D.

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### APPENDICULAR COLIC.

IN the June number of the *Annals of Surgery* there is an exceedingly valuable article with this title, by Dr. J. F. Binnie, of Kansas City. Dr. Binnie reports the case of a lady who had, within a little more than a year and a half, five attacks of what her physicians, who were most capable men, diagnosed as inflammation of the vermiform appendix. Continuously, after the first attack, she had decided tenderness in the right iliac region, limited to McBurney's point. The author saw her in consultation after her fifth attack. Her temperature was still slightly elevated, the tenderness at McBurney's point persisted, and her general health had begun to be impaired. Dr. Binnie removed the appendix, which was about three inches long, had a long mesentery, was straight, stiff, and hard, and pointed toward the pelvis. It contained three little masses of hardened fecal matter, each about as large as a grape seed. At a point over one of these bodies the peritoneal coat was slightly reddened; otherwise, except for its rigidity and for some thickening of the muscular coats observed on microscopic examination, the organ appeared to be absolutely normal.

Dr. Binnie remarks that the small area of peritoneal redness over a foreign body contained in the appendix in this case is highly suggestive that inflammation was imminent if not already present, but he adds that this condition was absolutely insufficient to account for the symptoms. The history was a typical one of recurrent appendicular inflammation, but there could have been little if any inflammation. The only supposition tenable is, he thinks, that the presence of the foreign bodies set up colic in the appendix. He cites a case of Dr. Kammerer's in which, during a recurrent attack attended with high temperature, a quick, weak pulse, coldness of the extremities, sudden pain, and some tympanites, an operation was performed and the appendix was found to be about four inches long, absolutely rigid, projecting into the pelvis in a straight direction, and completely filled with fecal concretions. He cites also a remarkable case recorded by von Hochstetter, that of a woman, forty-nine years old, whose illness began in November, 1880, with severe colic in the right half of the abdomen. The attack was so severe that it confined her to bed for a year and a half. After that she was able to be up most of the time for a number of months. In April, 1889, the pains became more intense and were continuous. At the end of October, 1889, she appeared to be very sick, although her temperature was not elevated. Besides the pains, she complained of flatulence and constipation. On examination, nothing was found but tympanites and abdominal tenderness, with a slight

increase in resistance on the right side. On laparotomy, the appendix was found stiff and hard like a solid body, and was in a state of chronic catarrh without ulceration and containing no other foreign bodies than a few threads of mucus. There were no adhesions. Removal of the appendix gave absolute relief. It is probable that the catarrh had closed the mouth of the appendix partially or completely, and that the cramp-like colic was due to the efforts of the organ to expel the mucus contained in it. The expulsive power of the appendix was illustrated in a case of Dr. Parker Sym's, before briefly mentioned in this journal, in which the organ was removed in the course of an oophorectomy, because, although healthy, it was five inches long and it was feared that it might give trouble subsequently. "After its removal it continued for almost ten minutes to squirm on the plate very much as a grub worm might do, and finally a formed fecal movement took place from it."

The author thinks that a positive diagnosis of appendicular colic can rarely be made, but that this is of little moment, for the treatment for that condition should be the same as for appendicular inflammation or perforation—the removal of the organ.

#### TARNIER ON ARTIFICIAL PREMATURE DELIVERY.

PROFESSOR TARNIER is reported in the *Medical Press and Circular* for May 10th as teaching conservatism in the adoption of pubic symphysiotomy under conditions where it is practicable to induce premature delivery. This leads him to a review of the present attitude of the profession toward that procedure and of the means most frequently employed in France for bringing on premature labor. Of all the various devices that have been introduced to the profession, he says, there are three only that are conspicuous. These are Krause's sound, Champetier's air-bag, and the author's own air-bag. The last is especially employed in Paris. The speediest method is Champetier's, for it effects its object in from six to twenty-four hours. The use of Tarnier's bag requires about forty-eight hours. Krause's sound acts more slowly still, producing the desired effect only in eighty hours. The results of induced delivery have earned for it an assured position. At the outset of its history it was accepted with hesitation, but it was not long before the medical world had adopted it with enthusiasm. Some criticism was subsequently advanced against it, and a certain tendency was manifested toward a resumption of the old Cæsarean section, especially after the latter operation began to be done antiseptically. To-day we have a revival of section of the pubic symphysis under antiseptic precautions, and in that guise symphysiotomy has begun to take rank again among the legitimate obstetrical operations.

As to the mortality properly to be assigned to symphysiotomy, it is too early to say much about it; but up to the present time the rate has been quite high when compared with that of artificial premature labor as practiced by Tarnier and his pupils. And, further, it may be stated that Tarnier does not maintain that the two other methods are attended with more peril to the mother than his own. In fact, he has said of them

that, so far as the welfare of the mother is concerned, those two other operations "are equally devoid of danger with his own." Within the last two years Tarnier has carried out his method of induced delivery forty-four times, with a loss of the mother in one instance only. This patient was in a state of extreme emaciation when the physician was called in. Of the children born in these forty-four deliveries, thirty-six, or over eighty per cent., were living, nine were born dead, and nine died soon after birth. Assuming the mortality of the Tarnier method to be nineteen per cent. for children, we find that he has attained a better result than that alleged for Krause's method, which involves a mortality of thirty-eight per cent., or for Champetier's, which gives a mortality of fifty-eight per cent. While he prefers his own method in the greater proportion of cases, he does not hesitate to resort to the use of Champetier's air-bag whenever he desires to induce labor more rapidly. From these figures and inferences Tarnier holds fast to this procedure as a meritorious operation that ought to be preferred in many instances to both hysterotomy and symphysiotomy.

#### MINOR PARAGRAPHS.

##### OPHTHALMIC SOLUTIONS AND THEIR READY STERILIZATION.

DR. SYDNEY STEPHENSON has recently presented before the London Ophthalmological Society a set of new eye-drop flasks devised by Dr. Stroschein, of Würzburg. Sterilization by boiling is facilitated, by the use of these flasks, in respect of solutions of atropine, etc., that are in daily and hourly use. The flasks are four in number and vary in color with the different solutions they are to contain. A white bottle is prepared for cocaine, a black one for atropine, a blue for homatropine, and a red one for physostigmine. In addition, the name of the drug is deeply etched on the flask. The cost of a set of these flasks is, in London, less than three dollars. The peculiarity of the flasks consists in their being made of thin glass, so that they do not break under the application of a small flame. A pipette accompanies each flask, the India-rubber cap of which is removed during the application of heat. A wire gauze on a little tripod goes with the set. This supports the flask with its pipette while the solution is being boiled for three minutes over a small spirit-lamp. Solutions that are in constant use should be thus treated at intervals of a few days. To obviate the tendency of these boilings to concentrate the solutions it is Dr. Stephenson's practice to add a few minims of distilled water before each boiling. According to the statement made by him in the *Medical Press and Circular*, Dr. Stroschein has made repeated, as many as a hundred, bacteriological tests to determine the merits of this process, and he has found the sterilization unexpectedly uniform and complete. As a means of preserving the solutions it is preferred by Dr. Stephenson to the use of antiseptic solutions, as when salicylic and boric acids are used. He has not found that the physiological properties of the solutions have been impaired by the degree of heat that is necessary in carrying out this method.

##### ITEMS, ETC.

The Appleton Prize, consisting of twenty-five dollars' worth of medical publications, offered annually by the firm of D. Appleton & Co. to the candidate passing the best examination before the board of

medical examiners of the State of North Carolina, was won this year by Dr. Frank H. Russell, of Wilmington, whose percentage was 96.84.

**Infections Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 20, 1893:

DISEASES.	Week ending June 13.		Week ending June 20.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	8	8	3	4
Typhoid fever.....	9	4	12	4
Scarlet fever.....	143	8	139	14
Cerebro-spinal meningitis.....	10	8	10	7
Measles.....	194	7	182	9
Diphtheria.....	112	42	127	41
Small-pox.....	10	0	8	2

**The Medico-legal Society of Chicago**, at its annual meeting, held on June 10th, elected the following officers: Dr. D. R. Brower, president; Dr. James Barry and Dr. C. D. Westcott, vice-presidents; Dr. Joseph Matteson, treasurer; and Dr. Archibald Church, secretary.

**The Death of Dr. Thomas Antisell, of Washington**, took place on the 14th inst. He was in his seventy-sixth year. He was a native of Ireland and had been educated in Dublin. He engaged in practice in New York for a few years after coming to America, but his home had been in Washington during the greater part of the last forty years. As a teacher and as a writer on chemical subjects he enjoyed a national reputation. During the late war he was surgeon-in-charge of one or more general hospitals near Washington.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 11 to June 17, 1893:*

**WYETH, MARLBOROUGH C.**, Captain and Assistant Surgeon. The extension of leave of absence granted on account of sickness is further extended two months on account of sickness.

**BEALL, GEORGE T.**, Captain and Medical Storekeeper, is granted leave of absence for one month from July 1, 1893.

**DE SHON, GEORGE D.**, First Lieutenant and Assistant Surgeon, will proceed to Chicago, Ill., and report in person to LA GARDE, LOUIS A., Captain and Assistant Surgeon, in charge of the Medical Section of the War Department exhibit, World's Columbian Exposition, for such duty as may be required of him in connection with said exhibit.

**STRAUB, PAUL F.**, First Lieutenant and Assistant Surgeon, is granted leave of absence for fifteen days, to take effect about July 1, 1893.

**EVERTS, EDWARD**, Captain and Assistant Surgeon. The leave of absence granted for seven days is extended twenty-three days.

**ALEXANDER, CHARLES T.**, Colonel and Assistant Surgeon General, is granted leave of absence for two months, to take effect on or about July 1, 1893.

**MATTHEWS, WASHINGTON**, Major and Surgeon, is granted leave of absence for one month, to take effect about the 1st proximo, with permission to apply for an extension of one month.

#### Society Meetings for the Coming Week:

**MONDAY, June 26th:** Medical Society of the County of New York; Boston Society for Medical Improvement; Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

**TUESDAY, June 27th:** New York Academy of Medicine (Section in Laryngology and Rhinology); Buffalo Obstetrical Society; Medical Societies of the Counties of Essex (annual—Elizabethtown) and Lewis (annual), N. Y.

**WEDNESDAY, June 28th:** New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany Auburn, N. Y., Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

## Proceedings of Societies.

### AMERICAN MEDICAL ASSOCIATION.

*Forty-fourth Annual Meeting, held in Milwaukee on Tuesday, Wednesday, Thursday, and Friday, June 6, 7, 8, and 9, 1893.*

The President, Dr. HUNTER MCGUIRE, of Richmond, in the Chair.

(Continued from page 677.)

**The Address in General Medicine**, entitled A Brief Review of Some Practical Advances in Medicine and Therapeutics, was read by Dr. HOBART AMORY HARE, of Philadelphia. The author confined himself to the presentation of certain broad facts illustrative of the present status of the non-surgical phases of advance in medicine. The increased scope, variety, and accuracy of diagnostic examinations, he said, no longer left the practitioner any excuse for empirical treatment of a disease on general principles. So-called specific ailments were being recognized as merely symptoms of the real causative and, therefore, curable disease. A particularly instructive example of such evolution in the art of symptomatic diagnosis was cited in the case of anæmia, so called. Neither under the comprehensive title "impoverished condition of the blood," nor as the assumed result of disease in the blood-making organs, had there been warrant for empirically dosing with iron till the patient's teeth were discolored or with arsenic till he felt as though his backbone were a crowbar; but when, with adequate microscopical devices, it had become possible to count and measure the decrease and increase of the blood-corpuscles in number and size, a basis for the test and proof of the value of arsenic in pernicious anæmia and of iron in chlorosis had been found.

**The Library.**—The secretary read the report of the librarian, in which it was recommended that the terms of transfer of the library to the Newberry Library, of Chicago, be left to the board of trustees and the librarian, with power to act, and that such action be final. The report was received and the views relative to the library were adopted.

**The Report of the Committee on Revision of the Constitution** was read by Dr. HENRY D. HOLTON, of Vermont, chairman. The report has already been published, so far as it relates to the constitution. With regard to the code, the committee's recommendations were as follows:

1. We would omit all sections of the code that describe the obligations of patients to their physicians and of the public to physicians. The reason for this suggestion is that the code is not designed either for patients or for the public, and so the sections are superfluous. This omits the ten sections under Article II, on pages 5, 6, 7, and 8, and Article XI on page 20.

2. We suggest the placing in the same list with the copyrighting of medical books and other similar work the patenting of all mechanical appliances used in medicine or surgery. The code says nothing respecting the copyrighting of medical publications, and we find no good reason why it should say anything respecting the patenting of mechanical devices.

3. We recommend the more accurate definition of the term "consultation," as we find good reason to believe that serious estrangement has arisen between physicians because of the different ideas they attached to this term. The code of ethics, page 14, second line from the top, says that in a "consultation" the responsibility must be equally divided between the medical attendants—they must equally share the credit as well as the blame of failure. With this statement before us, it is clear that there can be no consultation when one physician meets another



for the purpose of obtaining from him an account of the case, or pertinent facts of family history, or a record of the past management of the case, in order that he may more intelligently assume the entire responsibility of its future conduct. Thus the existing code of ethics of the American Medical Association defines a consultation substantially as a meeting of doctors to discuss a case to the end that they may equally share in its further management. By the same authority a consultation is not a meeting of physicians with a case, in which one gets all the facts possible from the other or others, as a preliminary to his assuming entire responsibility in its future conduct.

From these data it is clear that usually the specialist does not consult with the general practitioner. He simply obtains all the facts the general practitioner possesses preparatory to assuming full control of the case.

There are many other occasions for the meeting of medical men in connection with cases of sickness that are in no sense consultations according to the existing code. Hence we think that in the interest of scientific accuracy there should be a discrimination made in the matter of consultations, as present conditions differ widely from those of forty or more years ago.

Having premised this much, your committee recommends the alteration of Article IV, section 1, page 11, code of ethics, to read as follows: "A thorough medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as the good of the patient is the sole object in view, and this is often dependent upon personal confidence, no intelligent practitioner who has a license to practice from some medical board of known and acknowledged legal authority to issue such license, and who is in good moral and professional standing in the place in which he resides, should be refused consultation when it is requested by the patient."

4. It is suggested that it would be wise to rewrite the code in phraseology so plain as to make it a practical, common-sense document for daily guidance in the performance of our various duties and an aid in meeting responsibilities incident to our professional life.

Finally, your committee has found that in but few medical colleges has this document been taught, and never as a portion of the required curriculum.

It is believed that professional success of the best sort depends as well upon a practical knowledge of medical manners and medical ethics as upon anatomy, pathology, therapeutics, or surgery. To be master of the rules of conduct by which our neighboring doctors can be made our friends and kept such, so that the people may see that the medical men who serve them form a band of brothers devoted to the service of suffering humanity, is to possess a most desirable professional resource.

The committee finds that the code of ethics contains the essentials for the successful conduct of a medical career, as these have been learned by the actual experience of the best members of the medical profession, from the earliest dawn of history to the day on which it was written.

It sincerely trusts that the present discussion will lead to a more intelligent appreciation of its truths by all physicians, and especially that hereafter it will be made a text-book in every medical college, and an accurate knowledge of its contents be made a condition of receiving the degree of doctor of medicine.

The committee deprecates all efforts to abolish, belittle, distort, ridicule, or otherwise lessen its hold upon the profession. It is a heritage, representing at once the best characteristics of our profession during all its history, and a scientific document that points out the line of greatest prosperity in the future.

It would seem far better that, in the spirit of scientific students, we patiently inquire whether in any respect the changes incident to the last half-century warrant any modifications of statement of any portion of this document, in the interest of good to all and ill to none, for the increased prosperity of medical art and science, and a more united professional power over those whom we serve.

Dr. HENRY D. DIDAMA, of Syracuse, N. Y., then presented a minority report, in which he recommended leaving the present methods of representation and nomination, the constitution, and the code as they now stood.

On motion, the majority report was adopted and the committee continued. The amendments suggested, according to the constitution, were laid over for a year.

Dr. JOHN B. ROBERTS, of Philadelphia, entered his protest against the construction of the constitution by the chair, requiring the action on the code revision to be postponed until the next annual meeting.

Dr. N. S. DAVIS, of Chicago, called attention to the law which declared that all amendments must lie over for a year.

The President decided this in order, and said the amendments must lie over.

**The Association and the Profession in the State of New York.**—Dr. DAVIS then made a report on behalf of the committee to confer with committees from the Medical Society of the State of New York and the New York State Medical Association. The committee said in its report that when it was remembered that the so-called technical differences existing between the Medical Society of the State of New York and the American Medical Association consisted of nothing less than a deliberate abolition of the national code of ethics, which was equivalent to a voluntary withdrawal of said society from further connection with the national organization, it must be apparent to all that it would be most unwise for this body to make any propositions relating to the Medical Society of the State of New York. On motion, the report was received and filed.

**Cholera; where it comes from and how it is Propagated.**—This was the title of an address by Mr. ERNEST HART, of London, England. He said the subject of cholera was one which had perhaps been more written about, more discussed, than any other of our time. It was the subject of universal conversation. Cholera was no longer a thing to be dreaded, to be wondered at, or to be beyond control. In old text-books cholera had been summarized briefly as follows: Diagnosis of the disease easy; pathology uncertain; causation unknown; treatment useless. All this had been modified. Cholera was a filth disease, carried by dirty people to dirty places and spread by dirty or impure water. He denied that the advent of cholera was mysterious or that any of the incidents of its diffusion were unknown. He looked upon quarantine as a tribute that dirt paid to cleanliness. Cholera came from India and India only, although it sometimes hibernated in Europe. It had two routes—one across the Caucasus to the Baltic ports, and thence either directly or through Hamburg westward; the other from Mecca by pilgrim caravans or boat *via* Alexandria to Europe. Last year's epidemic had originated in Cashmere and been brought to Hamburg within five months. All mysterious talk of transmission of the disease by atmospheric currents belonged to a past period. We had formerly talked of thunder being mysterious, and it was just as reasonable to talk of cholera being mysterious. It was still a common popular notion that cholera came by Providence and went by drugs. This was the precise opposite of the truth. Cholera was a man-created disease, and drugs were, comparatively speaking, powerless against it. The war against cholera was the war of cleanliness against

filth, and the one kind of cleanliness which was absolutely essential, and in the face of which cholera could not spread or become epidemic, was purity of our drinking water. No community could have the disease that did not invite it by the habitual contamination of its water supply. Fumigation, railroad quarantines, libations, and sprinklings with antiseptic powders and fluids were vain ceremonies, mere sacrifices to the popular ignorance and prejudice. They created a false security and distracted attention from the only important agent of safety—namely, purification of soil, air, and water, but, above all things, purity of water. When the people insisted on municipalities and corporations giving them pure water, cholera, which the speaker considered a man created disease, would become extinct and its terrors a mere recollection. The latest results of microscopical examination and bacteriological research confirmed the vast mass of evidence collected in the statistical documents the speaker had before him, and clinically it had been shown that there never had been an outbreak of cholera in Europe that could not be traced to the distribution of an infected water supply. This was a matter of clinical and statistical observation. He believed that the members of the association would see to it, as far as possible, that the people got pure drinking water. If the association as a body put itself on record in such an important matter its voice would be potent and he doubted not successful.

[The concluding portion of Mr. Hart's address was printed in our issue for June 10th, on page 648.]

**The Address in Surgery** was delivered by Dr. HENRY H. MUDD, of St. Louis, on Surgical Problems. He said surgical cleanliness had taught us that drainage was not essential to the rapid healing of grave and extensive wounds. This advance had clearly defined a marked difference in the object to be obtained by primary and secondary drainage. No intelligent surgeon was ready to discard the use of secondary drainage in suppurating wounds, but there were many who asserted that they did not use it in fresh, clean wounds, no matter how extensive they might be. The interest in the controversy had been narrowed down to the use or abuse of drainage in operative wounds which were clean and aseptic. It must be awarded a new place now, when perfect cleanliness was supposed to accompany every fresh wound. Could we dispense with the drainage-tube in all so-called clean wounds? He thought not. Antiseptic surgeons asserted that every operative wound could be made aseptic, and that by a proper technique union by first intention could be secured. The conditions to be fulfilled to attain this end with a patient in fair general condition were an incised wound, a thorough hæmostasis, a perfect approximation, and the immobilization of wounded surfaces.

Another problem was the possibility of securing the permanent surgical relief of hernia. A permanent cure was established in many cases in children by the restraining influence of a truss. In individual cases where the permanent retention of the herniated viscus was possible during childhood it should be given a full trial before resorting to operative measures, since they were still uncertain in their results. The cure of hernia in adults by truss-wearing was an improbable event, and should not influence the decision against operative relief. Permanent recovery followed operative effort, he believed, in from sixty to eighty per cent. of the cases. Even the lower percentage justified continued operative effort.

The treatment of appendicitis was still an open question. The care of the individual case offered a choice of lines of treatment which made a decision most difficult. The anatomical and clinical investigations of the past few years had demonstrated very clearly that the American idea of the pathology of inflammations in this region was correct.

**Officers for the Ensuing Year.**—The report of the nominating committee was read by the chairman, Dr. TRAX, of New York, as follows: For president, Dr. James F. Hibberd, of Richmond, Ind.; for vice-presidents, Dr. John A. Wyeth, of New York, Dr. I. N. Love, of St. Louis, and Dr. U. O. B. Wingate, of Milwaukee; for treasurer, Dr. Richard J. Dunglison, of Philadelphia; for secretary, Dr. William B. Atkinson, of Philadelphia; for assistant secretary, Dr. H. B. Ellis, of San Francisco; for librarian, Dr. George W. Webster, of Chicago; for editor of the association's *Journal*, Dr. J. C. Culbertson, of Chicago; for trustees, Dr. J. B. Hamilton, of Chicago, Dr. E. E. Montgomery, of Philadelphia; Dr. E. Fletcher Ingals, of Chicago, and Dr. L. S. McMurtry, of Louisville; for members of the Judicial Council, Dr. X. C. Scott, of Ohio, Dr. G. W. Stone, of the Marine-Hospital Service, Dr. J. T. Jelks, of Arkansas, Dr. J. H. Murphy, of Minnesota, Dr. J. McFadden Gaston, of Georgia, Dr. T. A. Foster, of Maine, and Dr. I. N. Quimby, of New Jersey.

The report was adopted, and it was voted to hold the next meeting in San Francisco, beginning on the first Tuesday in May, 1894.

**The Address in State Medicine** was read by Dr. WALTER WYMAN, surgeon general of the Marine-Hospital Service, on the subject of the Extinction of Contagious Diseases. He said the history of the world showed that whole races of men and other animals had become extinct. Why should not races of microbes become extinct, and certain diseases that had once ravaged the earth in epidemic form so lose their inherent strength or be so controlled in the latter part of the nineteenth century as to warrant the belief that their histories were closed or fast closing?

With regard to yellow fever, the great period of its history had been from 1793 to 1858. Formerly it had been of common occurrence in Europe, the ports of Spain in particular suffering severely between 1801 and 1825, but there had been no disastrous epidemic of this disease in Europe since that of Lisbon in 1857, thirty-six years ago. Its earlier history in this country had included invasions not only of the South, but of ports as far north as Pennsylvania, New Jersey, New York, and even New Hampshire. But to-day, though constant vigilance against its introduction was necessary, it had practically vanished from the ports of the United States.

He said since the discovery of vaccination by Jenner, small-pox, though still a stubborn foe, no longer devastated without restraint. It was now simply a matter of choice whether one should be made absolutely proof against this disease, and the good effects of a compulsory law regarding vaccination were seen in the statistics of Prussia, in which country for six years prior to the enforcement of vaccination the deaths from small-pox had averaged 85 in a 100,000 of the inhabitants, while from 1875 to 1886, after the law had come into force, the yearly average had been but 2 in a 100,000.

Typhus fever flourished to-day in certain parts of Mexico, and was occasionally reported from the Old World. It was always a menace where large numbers of people were crowded together with insanitary surroundings. But it had no permanent lodgment in the United States, and the energetic and successful measures instituted by the board of health of New York during the past winter to suppress this disease, although it had appeared in a section of the city more densely populated than any other city in the world, were a striking example of what might be accomplished by proper law, energetic execution, and scientific disinfection.

With regard to cholera, which was still an ever-threatening menace, the history of the past few years had demonstrated most clearly its relation to filth and to contaminated food and

water, both of which conditions required only the peculiar energy and love of cleanliness characteristic of the Anglo-Saxon race. In recent years the superior sanitation of England, and the more perfect quarantine surveillance of the United States, had served to protect these two nations from this exotic disease. One possible agency in the elimination of these diseases, still young as a science but not without promise, was protective inoculation. Whatever opinion might be held of Freire's inoculations for yellow fever, and Kitasato's and Haffkine's inoculations for cholera, the investigations of these and other bacteriologists in this particular field warranted the hope that results would be obtained equal in efficiency to vaccination for variola.

The secretary presented from the general business committee the following resolutions which had been adopted by the committee, and were now submitted for the approval of the association:

*Resolved*, That no paper shall be read by title in any section which is not actually in the hands of the officers of the section, and that the secretary of the association be instructed to communicate this action to each section.

*Resolved*, That the general business committee hereby requests the officers of sections to communicate to this business committee any general resolutions passed relating to the conduct of the sections.

*Resolved*, That we recommend that the treasurer and committee of arrangements adopt measures to secure by courteous circular letters as large a registration of members as possible by mail three or four weeks before each annual meeting. Also that one month after the annual meeting each member who has not paid his annual dues be sent a notice that dues have not been paid, and that he be requested to remit the same; further, that similar notice be sent in each of the two succeeding months to those who do not remit; and that those who still fail to remit be drawn on at sight at the beginning of the next month, having been notified that they would be thus drawn on at the time specified. Unanimously adopted.

**The New Pharmacopœia.**—From the Section in *Materia Medica and Pharmacy* a resolution was offered and adopted to the effect that the American Medical Association recommend that the next edition of the *United States Pharmacopœia*, soon to be issued, be at once practically adopted by physicians in prescribing and pharmacists in compounding. It also advised the general adoption by physicians and pharmacists of the *National Formulary* issued by the American Pharmaceutical Association, and that the teaching medical and pharmaceutical colleges adopt these works as text-books.

Dr. J. E. BOYLAN offered the following amendment to By-law No. 11, relating to sections. The first clause of paragraph 5 shall be amended to read:

It shall be the duty of every member of the association who proposes to present a paper or report to any one of the sections to forward either the paper or a title indicative of its contents and its length to the secretary of said section, at least one month before the annual meeting at which the paper or report is to be read. Adopted.

**The Jenner Centennial.**—A communication from Dr. J. M. TOXER, of the committee on the Jenner Centennial, reported progress, and asked permission to fill a vacancy in the committee owing to the death of Dr. T. F. Wood, of North Carolina. The report was received and permission granted.

**The International Medical Congress.**—The PRESIDENT announced delegates to the Eleventh International Medical Congress at Rome, and also a delegate to the American Pharmaceutical Association, in the person of Dr. Frank Woodbury, of Philadelphia. On motion, the president and the secretary were

granted authority to appoint other delegates, if deemed desirable.

**Officers of Sections** were announced as follows:

*Surgery and Anatomy.*—Chairman, Dr. J. B. Roberts, of Philadelphia; secretary, Dr. F. W. McRae, of Atlanta, Georgia.

*Practice of Medicine.*—Chairman, Dr. H. A. Hare, of Philadelphia; secretary, Dr. W. H. Washburn, of Milwaukee.

*Obstetrics and Diseases of Women.*—Chairman, Dr. Joseph Eastman, of Indianapolis; secretary, Dr. George I. McKelway, of Philadelphia.

*Neurology and Medical Jurisprudence.*—Chairman, Dr. J. G. Kiernan, of Chicago; secretary, Dr. Frank P. Norbury, of Jacksonville, Ill.

*Ophthalmology.*—Chairman, Dr. A. R. Baker, of Cleveland; secretary, Dr. L. H. Taylor, of Wilkesbarre, Pa.

*Laryngology and Otology.*—Chairman, Dr. E. Fletcher Ingalls, of Chicago; secretary, Dr. J. F. Fulton, of St. Paul.

*Materia Medica and Pharmacy.*—Chairman, Dr. Frank Woodbury, of Philadelphia; secretary, Dr. F. E. Stewart, of Watkins, N. Y.

*Diseases of Children.*—Chairman, Dr. W. S. Christopher, of Chicago; secretary, Dr. Frank A. Churchill, of Chicago.

*State Medicine.*—Chairman, Dr. George W. Stoner, of the Marine-Hospital Service; secretary, Dr. C. H. Sheppard, of Brooklyn.

*Dermatology and Syphilography.*—Chairman, Dr. A. H. Ohmman-Dumesnil, of St. Louis; secretary, Dr. L. F. Frank, of Milwaukee.

*Physiology and Dietetics.*—Chairman, Dr. I. N. Love, of St. Louis; secretary, Dr. E. Cutter, of New York.

*Oral and Dental Surgery.*—Chairman, Dr. W. H. Fletcher, of Cincinnati; secretary, Dr. E. S. Talbot, of Chicago.

## Book Notices.

**Brain Surgery.** By M. ALLEN STARR, M. D., Ph. D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, Medical Department of Columbia College, New York, etc. With Fifty-nine Illustrations. New York: William Wood & Co., 1893. Pp. xii+295. [Price, \$3.]

THE author of this volume is favorably known as an able clinician and as a person well versed in neurological literature, and there is really no reason why a neurologist should not write on brain surgery in the limited sense in which Dr. Starr here uses it—a sense that ignores the greater part of all the brain surgery there is to be done.

We find it stated in the preface that it is only within the past five years that operations for the relief of epilepsy and of imbecility, etc., have been generally attempted. Later in the book the author shows that he is acquainted with the fact that the surgical literature of the last three hundred years contains the records of many such cases.

Notwithstanding the statement that "the diagnosis of the nature of disease in the brain is usually one of no great difficulty," we find further on that it is to be accepted *cum grano salis*, and that even the author has made his slips; for instance, in the history of Case VIII, page 44, the diagnosis was made that a traumatic epilepsy was the consequence of a small hemorrhage on the surface of the brain, but the operation of trephining showed that the skull, the dura, and the brain were normal. Then in Case XII, page 52, a patient with traumatic epilepsy was twice trephined and the skull, dura, and brain



were found normal. In Case XIII, page 52, for a similar disease a like operation was performed, and all the region supposed to be involved was found to be normal; while the statement on page 69, that "it is impossible (as a rule) to determine whether the fracture involves the external table only or the internal table as well," and that on page 135, that "it is impossible to ascertain the actual pathological condition present without an exploratory operation," decidedly modify the impression that the diagnosis is not very difficult.

The chapter on trephining for epilepsy gives credit to the surgery of old in the statement that "the operation of opening the skull for the relief of epilepsy is supposed to be one of the oldest in the history of surgery. That its results were unfavorable is demonstrated by the fact that it fell into disuse, and for several hundred years was entirely abandoned." However true this statement may be in part, the author has shown us nothing more favorable in the surgery he records, notwithstanding the fact that he considers it "a rational operation, for it is only within the past decade that a definite guide to the surgeon has been offered by the facts of the localization of brain functions." Here, again, the author is unfortunate in placing a number of pages further on a clause that entirely modifies such a dictum, for on page 112 he says it is evident that in the majority of recorded cases there has been a failure to cure epilepsy permanently by operative interference. We would go further and state that there is not one of his recorded cases that shows that the epilepsy was cured. Case I he cites as a recovery. The patient was trephined on November 9, 1892, and there were two subsequent epileptic attacks (dates not stated), after which the patient had remained well up to March, 1893. It does not seem to us justifiable to report such a case as one of cure four months after the operation. Certainly the author is aware, as is shown by the statement in another chapter, of the fact that excision of cicatrices, and even the abandoned operation of orbideotomy, have been followed by longer periods of immunity from epileptic attacks. Case II is reported as one of recovery, yet the patient was twice the subject of operative interference, the last time in January, 1893, and he had two attacks between that date and March! In what sense is the word recovery used? In Case IV the patient died of shock. Case V is reported as one of recovery, though the operation was performed on December 2, 1892, and the case reported in March, 1893. Cases III, VI, VII, VIII, IX, X, XI, XII, and XIII each had recurrences of the attacks. Yet, on page 54, the author summarizes to the effect that three patients had been cured, five had been improved, four had not been improved, and one had died. A correct summary would be that two had had no return of attacks within three and four months respectively after the operations, ten had had epileptic attacks after the operation (not improved, therefore), and one had died. To these cases, under his own observation, the author appends *résumés* of the histories of twenty-nine cases reported by other authors, and summarizes thus as regards the patients: Cured, ten; improved, six; not improved, eleven; died, two. As the period after operation at which these cases of cure were reported varied from a month to nine months, with an average for the ten cases of six months, we submit that the time is still too short to consider a case as cured, and that the cases of improvement ought to be transferred to the list of the not improved. Including the author's cases, twenty-eight per cent. of these patients remained free from epileptic attacks when their histories were published (average period, six months and a half after the operation), sixty-four per cent. still had epileptic attacks, and seven per cent. had died. This presentation is no better than that of a period when cerebral localization was unknown.

We are very glad to commend the author's condemnation of

cortical excision of supposed epileptogenous zones. The middle ages originated no more absurd and illogical premise than this—that the removal of certain portions of degenerated brain tissue that were exciting epilepsy would cure that condition, notwithstanding the fact that scar tissue would necessarily be formed to replace the degenerated tissue removed. Dr. Van Gieson has contributed a most interesting and valuable section on the microscopical appearance of brain tissue excised in two of the cases of traumatic epilepsy.

The chapter on trephining (craniectomy) for imbecility records thirty-four collected cases, of which fourteen were fatal. The author truly states that the successful cases were reported too soon after the operations to warrant any very positive statement regarding their permanent effect, but from the standpoint of euthanasia operative interference is recommended.

As the author intimates, the propriety of operating in cases of cerebral hemorrhage and of cerebral abscess has been established for years, but recorded facts necessitate his deduction that the results of surgical interference in brain tumors are not favorable for continuing to operate.

Regarding trephining for paresis, Bauer, of St. Louis, reported in 1870 a case of that disease associated with epilepsy as cured by the operation. Notwithstanding the consensus of opinion at the 1891 meeting of the British Medical Association, it would seem that the reasons for trephining for this condition are almost as valid as those for that operation in cases of microcephalic imbecility or of supposed cerebral tumors.

It is shown by experience that operative interference in certain cases of cerebral disease will prove to be advantageous and curative, and a work that will carefully lay down the lines for determining when to operate and when not to operate is greatly to be desired.

*Clinical Lectures on Abdominal Hernia*, chiefly in Relation to Treatment, including the Radical Cure. By WILLIAM H. BENNETT, F. R. C. S., Surgeon to St. George's Hospital, etc. With Twelve Diagrams. London and New York: Longmans, Green, & Co., 1893. Pp. ix+225. [Price, \$2.50.]

THIS series of lectures was delivered by the author at St. George's Hospital, London, and they are intended to deal with questions suggested by cases under treatment at different times, the author disclaiming any systematic or exhaustive consideration of the subject of hernia.

The first lecture considers certain anomalous symptoms of strangulation; the second shows that the existence of strangulation is not always incompatible with expansile impulse in hernia; and the third treats of symptoms of strangulation occurring in cases in which the hernial sac apparently contains neither omentum nor bowel.

In the fourth lecture certain peculiarities met with in the arrangement and shape of hernial sacs are described. The membranous flaps, having a valve-like action, that sometimes form in the neck of the sac in inguinal hernia, are considered as formed in the natural attempt at the closure of the funicular process of the peritoneum. This latter explanation is also offered as a reason for the irregularities that are found in some inguinal sacs.

The fifth lecture deals with the difficulties and dangers of taxis, and the principle is advanced that it is better in obviously strangulated hernia to perform kelotomy at once than make attempts at reduction by manipulation.

In the sixth lecture, on the management of damaged bowel in strangulated hernia, the author states that he has never personally met with a case in which resection of the intestine was worthy of serious thought, and he believes that the cases must be singularly rare in which the extent of the damage to the in-

testine as well as the critical condition of the patient does not preclude resection. The urgency of the symptoms forbids an attempt to obtain an ideal result. Where the gangrenous gut is left unreduced after kelotomy, with a view to the formation of an artificial anus, Mr. Bennett advises that the stricture should be divided freely, because it relieves continuous pressure on the constricted parts, obviates to a great extent the occurrence of peritoneal irritation, and contributes to the subsequent spontaneous closure of the artificial anus.

In the seventh lecture the author gives excellent reasons why median abdominal section should not be substituted for kelotomy. The eighth lecture is on certain unfavorable symptoms occurring after the reduction of strangulated hernia.

The last three lectures are devoted to the consideration of the radical cure of hernia. The author's operation for inguinal hernia in infancy is to make traction on the sac, excise it, sometimes approximate and suture the margins of the ring, avoid a drainage-tube, suture the skin wound, and dress with a wet dressing. In such cases in adults the author practices a rather complicated invagination of the sac so as to place a barrier across the abdominal orifice of the canal, and to obliterate the peritoneal hernial fossa by dragging up the posterior wall of the sac. Mr. Bennett believes that if the sac is properly obliterated very simple management of the canal and rings is required; but if the treatment of the sac is defective, no amount of ingenuity exercised upon the closing of the canal will insure anything more than temporary success. In femoral hernia the sac is treated as in the author's operation for inguinal hernia, but he acknowledges the futility of any existing method of treating the ring and canal. In umbilical hernia he exposes and cuts away the superfluous parts of the sac, and brings together the margins of the ring by means of permanent silk-worm-gut sutures, first fixing a pad of omental tissue across the abdominal aspect of the hernial orifice.

Mr. Bennett's lectures give evidence of careful study and thought, and the volume is an interesting and suggestive one.

*Cheyne-Stokes Respiration.* By GEORGE ALEXANDER GIBSON, M. D., D. Sc., etc., Assistant Physician to the Royal Infirmary of Edinburgh. Edinburgh: Oliver & Boyd, 1892. Pp. 133. [Price, 5s.]

The author divides the consideration of his theme into three sections: historical, clinical, and critical. In the first he refers to passages in the writings of Hippocrates and of Nicolas showing that they had recognized the peculiar respiration subsequently described by Cheyne and by Stokes; and the literature on the subject following the date of the publications of the latter authors is exhaustively reviewed. In the clinical section the author reports a number of instances of the phenomenon in question, while the critical section reviews the various theories that have been advanced in explanation of the Cheyne-Stokes respiration. The author believes, with Rosenbach, that it is but one of a complex group of associated symptoms, though the essential cause of the symptom is a periodic variation in the functional activity of the automatic center for respiration. The work is a careful and thorough review of a very interesting pathological phenomenon.

*Lessons in Physical Diagnosis.* By ALFRED L. LOOMIS, M. D., LL. D., Professor of the Practice of Medicine and Pathology in the University of the City of New York. Tenth Edition, revised and enlarged. New York: William Wood & Co., 1893. Pp. xi-3 to 278. [Price, \$3.]

The author states in the preface that this edition has been thoroughly revised, such corrections and additions being incor-

porated as seemed necessary to make the volume a more complete guide for the student of physical diagnosis. It might have been supposed that the author would take this opportunity to publish such a work on diagnosis as would be a credit to his long experience and to the present state of medical knowledge. But this volume is sketchy in the treatment of important subjects, and many things in physical diagnosis are omitted; for example, there is practically nothing said of the diagnosis of Addison's or of Basedow's disease, of anæmia, or of nervous diseases. Electricity as a means of diagnosis and the diagnostic use of the stomach tube are not mentioned. These are but a few of the features that detract from the value of this work and make the new edition a superfluous one.

*The National Association of Railway Surgeons.* Official Report of the Fifth Annual Meeting, held at Old Point Comfort, Va., May 25 to 28, 1892. Edited by R. HARVEY REED, M. D., Mansfield, Ohio.

This volume contains a record of the proceedings of this vigorous organization at its meeting at Old Point Comfort, Va., in May, 1892, as well as the papers that were presented for the consideration of the meeting. The papers were on various topics of interest to the railway surgeon, though the majority, as might be imagined, were on surgical subjects. The volume is a creditable representation of the character of the association's work.

#### BOOKS, ETC., RECEIVED.

*Electro-therapeutics of Neurasthenia.* By W. F. Robinson, M. D. Detroit: George S. Davis, 1893. Pp. x-72. [*The Physician's Leisure Library.*]

*Transactions of the Southern Surgical and Gynecological Association.* Volume V. Fifth Session, held at Louisville, Ky., November 16, 17, and 18, 1892.

*Transactions of the American Association of Obstetricians and Gynecologists.* Volume V. For the Year 1892.

*In Memory of Professor T. G. Richardson, M. D.* Memorial Address delivered on Commencement Day, April 5, 1893. By Professor Stanford E. Chaille, A. M., M. D., Dean of the Medical Department, Tulane University, Louisiana.

*A Contribution to the Anatomy of Congenital Equino-Varus.* By Herbert L. Burrell, M. D., of Boston. [Reprinted from the *Annals of Surgery.*]

*Abscesses in Pott's Disease.* By Herbert L. Burrell, M. D., of Boston. [Reprinted from the *Medical News.*]

*A Case of Appendicitis occurring on the Seventh Day following Labor. Rupture into the Bowel. Recovery.* By Reuben Peterson, M. D., Grand Rapids, Mich. [Reprinted from the *Medical News.*]

*Observations on the Mechanical and Operative Treatment of Hernia at the Hospital for Ruptured and Crippled of New York.* By William T. Bull, M. D., and William B. Coley, M. D. [Reprinted from the *Annals of Surgery.*]

*Our Dispensaries, Hospitals, Philanthropy, Frauds, and the Necessity of Medical Reform.* By L. F. Criado, M. D. [Reprinted from the *Brooklyn Medical Journal.*]

*Additional Notes on the Diazo Reaction.* By Aldred E. Warthin, M. D. [Reprinted from the *Medical News.*]

*Suppurative Pylephlebitis and Hepatic Abscess Secondary to Appendicitis; with a Report of Two Cases.* By George Erety Shoemaker, M. D., Philadelphia. [Reprinted from the *Medical News.*]

*A Case of Congenital Deficiency of the Lower Extremities.* By George Erety Shoemaker, M. D., Philadelphia. [Reprinted from the *International Medical Magazine.*]

The Treatment of Alcoholic Inebriety. By Frederick Peterson, M. D., New York. [Reprinted from the *Journal of the American Medical Association*.]

Paralysis of Laryngeal Muscles, with Cases. By W. Cheatham, M. D., Louisville, Ky. [Reprinted from the *American Practitioner and News*.]

Leptothrix Mycosis of the Tonsil, Pharynx, and Base of Tongue. By William Cheatham, M. D., Louisville, Ky. [Reprinted from the *American Practitioner and News*.]

Pachymeningitis—Myxœdema. By Samuel Wolfe, M. D., Philadelphia. [Reprinted from the *American Therapist*.]

The Twentieth Annual Report of the Metropolitan Throat Hospital for the Treatment of Diseases of the Nose and Throat.

La soudure complète du voile du palais et du pharynx. Par le Dr. A. Cartaz. [Extrait des *Arch. int. de laryngologie*.]

Revue statistique des maladies de la gorge, du larynx, du nez et des oreilles. Par le Docteur R. Beausoleil. Paris: O. Doin, 1893.

Un caso di elefantiasis nostras del pene e dello scroto. Studio clinico del Dott. Giovanni Setti. [Estratto dalla *Rassegna di Scienze Mediche*.]

## Miscellany.

**Hypertrophic Pulmonary Osteo-arthritis.**—In the *British Medical Journal* for June 3d Mr. William Thorburn, of the Manchester Royal Infirmary, gives the histories of three cases of the *osteo-arthritis hypertrophicans d'origine pneumique* of Marie, and, drawing deductions from them and from twenty-seven other cases referred to in literature, says:

"**Diagnosis.**—The clinical characters of hypertrophic pulmonary osteo-arthritis, as described by the French writers, are in many respects similar to those of acromegaly; but they present, nevertheless, important and sufficiently obvious differences. In the former disease the hands and feet are always greatly and symmetrically enlarged, the increase in size involving also the lower fourths or thirds of the forearms and legs, implicating the bones more than the soft parts and affecting markedly the terminal phalanges, over which the expanded nails are spread out with a transverse and longitudinal curve, so as to be very convex. The nails themselves are very large, and, bending over the ends of the fingers, give these a great resemblance to the beak of a parrot; they usually present a longitudinal striation. Various long bones are often hypertrophied, especially at their ends, and effusion of fluid into the knees and other joints is common. The skull is not affected, the lower jaw, nasal, and malar bones being also normal; in one case only was the upper jaw slightly deformed by thickening of its alveolus. Scoliosis is common, and it is not rare to meet with kyphosis, which affects the lower dorsal region. The disease is generally of insidious onset and long duration, and in all, or nearly all, cases is accompanied by some form of chronic bronchial, pulmonary, or pleural disease, for which reason it is described as 'of pulmonary origin.' From osteitis deformans it differs widely, but especially in the absence of enlargement of the cranium. Myxœdema is also perfectly distinct, and is characterized by the thickening of the soft parts rather than of the bones. A perusal of the annexed reports will sufficiently indicate that we have certainly not to deal with even atypical cases of chronic rheumatic arthritis, leontiasis ossæ, gigantism, or of ordinary tuberculous or syphilitic lesions, all of which have been clearly distinguished from hypertrophic pulmonary osteo-arthritis by other writers. Finally, many of the points already referred to show that there is in this condition something more than a mere exaggeration of the common Hippocratic hand of pulmonary and cardiac diseases, and the fingers differ from ordinary clubbed fingers in that the main enlargement is not terminal, and that it is unaccompanied by cyanosis.

"The only real difficulty in diagnosis hitherto encountered has been in the differentiation of hypertrophic pulmonary osteo-arthritis from acromegaly, and the latter is distinguished chiefly by the more uniform and proportional hypertrophy of the fingers, the relative smallness of the nails, the large size of the carpo-metacarpal region as compared with the wrist, the analogous condition of the foot, and the normal size of the radius and tibia. In acromegaly also the hypertrophy is not so distinctly limited to the bones; kyphosis, when present (as it usually is), affects the cervico-dorsal and not the dorso-lumbar region; the lower jaw is greatly deformed, causing marked prognathism; the nose, lips, tongue, neck, larynx, and ears are often enlarged, and there are defects in speech, mastication, and deglutition. All these characters are conspicuous by their absence in our disease. Acromegaly further presents no essential connection with chest affections, but is commonly accompanied by, if not due to, enlargement of the pituitary body, with consequent visual and cerebral troubles. Other minor distinctions have been made, but, in the present condition of our knowledge of the subject, a too great refinement of detail would appear to be dangerous, and a broad view of every case under consideration is more likely to lead to a correct conclusion as to its nature.

"Taking such a general view, the reasons which have led the writer to regard the following cases as examples of hypertrophic pulmonary osteo-arthritis are mainly these: In T. H., the case first seen by me, we have irregular enlargement of the fingers, associated with obvious bony hypertrophy, and especially with increase in size of the lower ends of the bones of the leg and forearm; the knee joints present changes such as are commonly seen in this condition; there is no affection of the maxilla, lips, tongue, eyes, etc.; and we have just such a pulmonary lesion as is almost invariably described. The coexistence of spinal caries renders useless all comparison with the special kyphoses described in acromegaly and pulmonary osteo-arthritis respectively, but it is of interest to notice that spinal caries was present also in Orrillard's case of the latter affection. The second case, T. W., was obviously of the same nature as the first, although the enlargement of the extremities was less striking, and the condition of the nails and spine here approached more closely to the original description of Marie. In the third and last case the few notes obtainable are more than suggestive, and although no diagnosis was made during the life of the patient, Dr. Wilkinson and Dr. Reynolds, who had seen the man, immediately recognized the similarity of the condition to that of Case I, when they had an opportunity of examining the latter."

After giving the clinical histories, Mr. Thorburn proceeds as follows:

"**General Symptoms.**—The usual symptoms of hypertrophic pulmonary osteo-arthritis are sufficiently indicated by the above cases, as well as by the remarks which preceded their description, and it is only necessary to add that, in addition to the characteristic condition of the extremities, it is not rare to find some affection of other joints, as the elbows and knees, which are often inflamed, or the shoulder, in which there were signs of inflammation in Marie's first case. Some enlargement of the patella is common. In Erb's cases retrosternal dullness of uncertain origin was noted, but this appears from subsequent records to have no special connection with the other clinical features.

"**Age and Mode of Onset.**—The disease is almost confined to adult life, but three cases are recorded in children, of whom the youngest (Gillet's case) was seven years of age. Equally marked is its tendency to affect the male sex, there being only two females among the total of thirty cases. The onset is generally gradual, and the time of its commencement usually quite uncertain, so that in some cases there appears to have even been a congenital tendency to the development of large extremities. In other and fewer cases there is a clear history of a sudden and rapid course, as in the case recorded by Saundby, in which some four months appeared to have sufficed for the development of a typical condition. In my own first case, in which the history is the most complete, the growth commenced somewhat rapidly, and, having reached a certain point, became much slower, so as to leave an almost stationary condition.

"**Prognosis and Treatment.**—No intrinsic danger to life accompanies the presence of this complication of pulmonary disease, but, the primary and causal condition being of necessity generally fatal, the ulti-



mate result can not be observed. There is, however, certainly no tendency to acute inflammation or to suppuration of the affected bones and joints. Of treatment we can say little, except that in a case of Moussous's, in which an empyema was accompanied by a slight degree of hypertrophy of the extremities, the antiseptic irrigation of the pleura was followed by a diminution in their size; and in Gillet's case improvement followed the drainage of an associated tubercular vomica, so that there is reason to suppose that the relief of the pulmonary condition is not without beneficial effect upon the complication.

*Pathology.*—The most interesting point about this affection is the question, not yet satisfactorily settled, as to its essential nature and pathology. The original suggestion of Marie, which has been adopted by the subsequent French writers, was that there is always a primary lesion of the respiratory apparatus; that at the seat of this lesion there are produced, by the action of micro-organisms, putrid or fermenting substances (toxines); that such substances are reabsorbed into the circulation; and that finally they there exercise an 'elective action' upon certain parts of the osseous and articular systems, producing inflammatory troubles. In favor of this elective chemical origin is cited the example of gout, in which the circulation of uric acid produces lesions not very widely different. Marie admits that this theory is wanting in proof, but offers it as the only reasonable suggestion occurring to him; and he draws a parallel between hypertrophic pulmonary osteo-arthritis and the toxic pseudo-rheumatism of Bouchard.

'Bamberger, writing independently of Marie, and describing the 'bony changes in chronic pulmonary and cardiac diseases,' gives very complete details as to the pathological appearances in various cases, many of which are no doubt of the same nature as the disease with which we are concerned, but his generalizations are somewhat confused by his inclusion of the congestive clubbed fingers of congenital and other heart diseases. For the hypertrophies associated with lung troubles he, however, advances a view very similar to that of the French physician. His lung cases are all regarded as examples of bronchiectasis, and he is at some trouble to show by bacteriological observations of the sputa that they are not tubercular; he holds that the essential condition is the presence of a pulmonary or bronchial cavity, in which are produced by fermentative action chemical substances, which, on being absorbed into the circulation, give rise to the osseous and articular inflammations. In support of this view he adduces the evidence that (1) several patients stated that the first affection of the limbs was coincident with the commencement of expectoration of the sputum; (2) the injection of phosphorus and arsenic causes similar troubles; (3) cases of bronchial catarrh and of tuberculosis without purulent sputum are not accompanied by the symptoms described. On the other hand, he made a number of injections of the sputum of bronchiectasis into animals without producing any analogous symptoms.

*Associated Conditions: Pulmonary Affections.*—If now we turn to the associated conditions as indicative of the possible nature of the affection, we find that in all cases, except one of Erb's, there has been some chest lesion; and it is to be remembered, with regard to Erb's case, first, that there was 'retro-sternal dullness' of unknown origin, and, secondly, that Erb himself did not report the case as hypertrophic pulmonary osteo-arthritis; under these circumstances of obscurity, we are perhaps justified in disregarding his case, and in assuming a practically universal association with pulmonary disease.

"As regards the nature of this pulmonary affection there is, however, more room for doubt; in two cases (Saundby's and Ewald's respectively) the essential lesion was a sarcoma and a cancer of the lung, associated in the first with chronic bronchitis, and in the second with hemorrhagic pleurisy; but here again neither of the cases was originally described as hypertrophic pulmonary osteo-arthritis. Of the remaining twenty-seven cases, six (Fraentzel's, two of Lefebvre's, Moussous's, Orrillard's, and Gillet's) are described as tubercular, and there appears to be no doubt that the three cases now recorded are also of this nature, thus giving a total of nine, in which tuberculosis was recognized as the primary disease. The following brief statements will indicate that there is at least a strong probability of many of the remaining cases being of the same nature. In Bailly's there were scrofulous glands with chronic empyema, pleural fistula, and purulent expectoration; in

Erb's first case there had been pneumonia, and there was, at the time of observation, chronic bronchitis, emphysema, and loss of weight; in Elliott's case we have pleural effusion, enlargement of the inguinal glands, and persistent and fatal diarrhoea; in Sollier's, chronic empyema with sinuses; in Marie's, slight pulmonary congestion with remittent fever; in Waldo's, pleurisy and pulmonary cavities, apparently tubercular; in Spillmann and Haushalter's, cough of some years' duration, with development of distinct signs of phthisis after the onset of the hypertrophy; in Lefebvre's first case, chronic empyema with sinuses; in his second, long-standing cough, abscesses of the chest wall and groin, and free expectoration; in Gerhardt's, bronchial catarrh; in Rauzier's, long-standing empyema, preceded by pneumonia, and accompanied by purulent expectoration and diarrhoea; and finally Bamberger's cases all resembled phthisis, but were regarded as non-tubercular bronchiectasis, mainly on the ground of the absence of bacilli from the sputum (in one of these cases tuberculosis was recognized post mortem).

"From these records the writer can not but feel a strong conviction that the vast majority, if not all, were really cases of tuberculosis, and this in spite of the explicit declarations of some of the original observers, that there was no tuberculosis. I would suggest that the absence of bacilli and the generally ill-defined nature of the disease is due to the fact of its being of a comparatively mild type, a contention borne out by the absence of severe symptoms in my first case, in which the association of a pulmonary cavity with spinal caries points nevertheless most strongly to a tubercular origin. Allowing then for the fact that hypertrophic pulmonary osteo-arthritis is as yet a little-known disease, and that some of the above cases possibly belong to other categories, the writer inclines strongly to the belief that it will ultimately be shown to be invariably associated with tuberculous lesions, and that in the great majority of cases such lesions are of a badly marked type, either because the patient is making a good resistance to the invasion of the disease, or because the infection itself is less virulent than usual.

"The clinical appearances of the hypertrophied parts at once recall those of tuberculous joints; the condition of the knees in my first and second cases is exactly that of a slowly progressive or stationary 'strumous' knee joint; similar affections of other joints have been frequently described by various writers; the wrists and ankles also resemble the same parts as affected by tubercular synovitis, and finally the fingers are not unlike those affected with strumous dactylitis.

"Finally, the few post-mortem records confirm the view that we have really to do with a tubercular affection. The only anatomical descriptions which we have are those of Rauzier, Thérèse (recorded by Lefebvre), and Bamberger. Rauzier describes, in the elbow, extensive erosion of the cartilages, increase in the amount of synovial fluid, and enlargement of the epiphyses; in the wrist, synovial effusion and erosion of cartilages; in the carpus, enlargement of the bones, with erosions of their incrusting cartilages; and similar changes in other joints which he examined. Thérèse describes thickening and adhesion of the periosteum of the affected bones, with a warty deposit of new periosteal bone, and a central rarefying osteomyelitis. Finally, Bamberger illustrates the same condition of periosteal new formation of bone, his figures exactly resembling the condition often seen in the case of long bones adjacent to a tuberculous joint lesion. All observers are agreed that the soft parts are particularly unaffected.

*Conclusion.*—For these various reasons I would suggest that hypertrophic pulmonary osteo-arthritis is in reality a tubercular affection of a large number of bones and joints, but that it is of a benign type, having no tendency to break down or caseate. It appears in fact to bear to the common 'strumous' lesions of joints a relation similar to that which lupus bears to 'tuberculous ulceration' of the skin, and also, like lupus, it is widely diffused, with a tendency to be symmetrical and to affect the extremities, possibly because the comparative feebleness of the circulation here favors the growth of bacilli which are maintaining a precarious existence in the body. Should this view ultimately prove to be correct, we might, with advantage, substitute for the cumbersome but guarded designation of Marie the term 'tuberculous polyarthritides.'

**Strontium Bromide in the Treatment of Chronic Epilepsy.**—Dr. Henry J. Berkley, of the City Insane Asylum, Baltimore, says in the May number of the *Johns Hopkins Hospital Bulletin*:

"The constantly increasing number of incurable epileptics, both in asylums and at large, occasions an ever-growing demand for new drugs, from which we may at least hope to effect some improvement, in either their psychical condition, or a diminution of the number of seizures.

"Among the recent applicants for medical favor in this line has been the bromide of strontium (Paraf-Javal), purporting to be a salt free from the impurities of the ordinary commercial article which render it unfit for continued use, or even poisonous in moderate doses. This statement as to its non-toxic action we have found to be well founded, no evil result having followed thirty-grain doses repeated thrice daily, and no case that has been treated with the salt has shown other than beneficial results. Above all, we have to note continued absence of a bromide acne (even disappearance of the rash, though it was present when the use of the strontium was commenced), a very much lessened somnolent effect, the patients without exception appearing brighter and more cheerful under its use than with the sodium salt, and finally certain excitable cases were less quarrelsome after a seizure than under the every-day treatment—points all of very considerable value, both in private and asylum practice.

"We have not been able to determine that the actual character of the seizures, when they do occur, is altered to any extent by the strontium salt, though some of the attendants were of the opinion that the convulsions were lighter in character than before the treatment was inaugurated, but it remains an uncertain point, the opinions being too much at variance to be of value.

"In the September past, at the commencement of our experiment, we found in the City Insane Asylum thirty-six chronic epileptics, the majority being of many years' standing. At this date the whole thirty-six were treated with what is known as the 'house epileptic mixture,' which contains twenty grains of sodium bromide and fifteen grains of potassium iodide to the tablespoonful, and which was given in this dose three times a day. A census of the thirty-six cases was made, and eleven of the worst and most regular epileptics were selected for the new treatment. These were, however, kept under the sodium bromide for four weeks longer, and the number of seizures that occurred daily were noted down by the attendants on charts especially prepared for the purpose. At the end of the fourth week the treatment was changed to a solution of sodium chloride (ten grains to half an ounce of water), three times daily, upon which the eleven were kept for ten days. During this time the number of attacks increased greatly, and elicited the remark from one of the attendants that 'they fall around like sheep.' One curious point is to be noticed in the sodium-chloride treatment—namely, that in the last two days during which it was administered but one patient (J. P.) had a seizure. However, the very next day they began afresh, and it would therefore seem that the nervous centers had to some extent become temporarily exhausted. It is also to be noted that at the end of the ten days the eleven patients were generally in a decidedly worse mental and physical condition than under the sodium bromide.

"On the 1st of December the selected patients were placed on a solution of strontium bromide (kindly furnished for the purpose by Messrs. Fougere, of New York), and within a few days a decided improvement became manifest in all except two cases (F. B. and M. W.). All were treated in precisely the same way, receiving twenty-one grains and a half of the salt thrice daily. The dose with F. B. was within a day or two increased to thirty grains, when he also followed in the train of the nine. On December 20th, owing to the unfortunate miscarriage of a letter, the treatment had temporarily to be discontinued, and from this date to the end of the month no medicine whatever was administered. During these ten days a gradual rise in the number of convulsions was noted. In the first seven days the rise was exceedingly slow, in the last three days sixteen seizures occurred, one patient alone having three.

"On December 31st, a new supply of the bromide having been obtained, the treatment was recommenced and continued through to January 31, 1893, without interruption. In October, under the sodium bromide, the eleven had eighty-one convulsions, in December there were fifty-five seizures, in January sixty-five, marking a decided fall and very gradual rise for the entire number. This statement is vitiated to a degree by the non-amenability of Weinecker, Kinzer, and Schreck,

and the inclusion of a case of Jacksonian epilepsy (Wasch) in the list. Excluding the cases of Weinecker and Wasch, we have the following statement: In October seventy-six, in December thirty-two fits, in January forty-four fits. With Weinecker the strontium treatment seemed to be of positive disadvantage. With Wasch, who has a gross lesion of the cerebrum, it seems to have had no influence either for good or evil.

"With several other epileptics the strontium treatment was tried, but less systematically, partly owing to the patients at times refusing to take it; but in all to whom it was given an improvement has been noticed, both in the diminution of the number of fits and in their increased mental brightness. One, a most unmanageable case (J. K.), with postepileptic stupor lasting for a number of days after each attack, has improved very greatly mentally, and the number of seizures has diminished.

"It is but fair to state that the *personnel* of the attendants of the asylum is not all that could be desired, and that absolute reliance is unfortunately not to be placed on all their observations, and it is well to bear this in mind in drawing conclusions of the results of the strontium treatment. In one small ward, however, there is an exception, the attendant being very faithful and observant, and it was precisely in this same ward that the strontium salt gave its best results. In this department were the chronic epileptics—Gray, Beam, White, and Chew. In October, under the sodium bromide, the total number of seizures of the four numbered thirty-seven, in December seven, in January there was a rise to eighteen, less than one half that of October."

Brief notes of the cases are appended. In the discussion which followed the reading of Dr. Berkley's paper before the Hospital Medical Society, the author stated that strontium bromide was rather a pungent salt, but that he had not known its use to cause disorder of the stomach.

**Internal Hemorrhoids.**—In a paper read before the Medical Society of Victoria by Mr. Waldemar Roedel, formerly of St. Mark's Hospital for Fistula, London, published in the April number of the *Australian Medical Journal*, we find the following:

"When I became the private assistant of Mr. W. Allingham, who I may at once say, I regard as the greatest living authority on the rectum, I held the view, common I believe to the great bulk of the profession, that internal hemorrhoids are nothing more nor less than a varicose condition of the superior and middle hemorrhoidal veins. I had been taught this at my school, along with the commonly accepted etiology of internal hemorrhoids, *id est*, the liver theory—namely, that the liver, through being chronically congested, causes dilatation in the tributary veins that go to form the portal vein, and in this wise is responsible for the varicosities in the superior hemorrhoidal, that are branches of the inferior mesenteric vein. However, I know better now. Still, in those days, I firmly held to what I had been taught, and really believed all this trash about the liver. As a corollary, I naturally supposed that varicosities of the hemorrhoidal veins would, after removal, recur, while the cause which had produced them in the first instance remained active. In other words, I regarded the operation for the removal of internal hemorrhoids as likely only to afford temporary relief; I made sure that there could in no sense be a radical cure. Great was my surprise, therefore, on hearing Mr. Allingham say that he could not recollect having ever had to operate twice on the same patient for hemorrhoids. Some of the members here to-night may possibly have met Mr. Allingham while in London, and they will bear me out when I say that he is not the sort of man who makes statements at random.

"Well, gentlemen, I began to doubt the truth of the pathology I had been taught, and determined to investigate this matter for myself. Opportunity was abundant. Mr. Allingham was using his new crusher, which furnished me with numberless specimens; for, as you know, when this instrument has been applied to a hemorrhoid at its base, the part of the growth protruding is cut off flush with the crusher. These specimens I took home in hardening fluid, and then cut into sections on a freezing microtome. On the table are six microscopes showing some of these. I read up the subject, too, with the following results:

"Two main views are held in regard to the pathology of internal hemorrhoids—one, that these growths are nothing more than varices

of the hemorrhoidal veins; in other words, that histologically they do not differ from varicose veins of the leg; the other, that arteries enter freely into their formation, that arteries are always present in them and may form the bulk of the tumor; in other words, that internal hemorrhoids are nothing more nor less than angiomas in the meaning given to the term by some writers, that an angioma is a vascular tumor which may consist of all three kinds of blood-vessels held together by a small amount of connective tissue. It may be a matter of surprise that this view, although of course not as old as the other, still has the respectable age of one hundred and sixty years, having been first started by M. Le Dreu, a French surgeon, in the year 1732.

"The sections under the microscopes are from hemorrhoids that were placed, some in a one-eighth-per-cent. chromic-acid solution, others in methylated spirit and water, were then cut with a freezing microtome and stained, some with hematoxylin, others with eosin. In this manner I have at present examined the hemorrhoids of nearly two hundred individuals. Those on the table are from a collection of between thirty and forty that I made two years ago, except two that I have added since. They are all taken from individuals between thirty and fifty years of age who had resided a longer or shorter time in hot climates. Therefore they only represent one variety of hemorrhoid, although certainly the most common kind—the sort that surgeons have to deal with most often. The pile consists essentially of a limiting wall of mucous membrane, with its muscular layer, the muscularis mucosæ, beneath which is the submucous tissue in which are imbedded the vessels. In one specimen you will find present the muscular wall of the intestine, which, as it projected into the pile, it was impossible not to include in the process of removal.

"Here I wish to call attention to a fact which I am not aware has ever yet been noticed, at least I have found no mention of it in any work to which I have had access in the Royal College of Surgeons, London. It is this: Internal hemorrhoids are, of course, covered with an epithelium consisting of columnar cells which dip down into Lieberkühn's follicles, but this only applies when they remain inside and under protection of the gut. Where the pile protrudes from the intestine it is covered by squamous epithelium, exactly as the lining epithelium of the uterus in inversion of the third degree may also become squamous, and it is very interesting to notice that this change from columnar to stratified epithelium is immediate; there is no gradation, no change by degrees, but a direct transmutation from columnar to pavement epithelium. It may be urged that the point of change in the epithelium is but the natural spot at which epithelium always changes from columnar to squamous, at the orifice of the rectum. Against this I can only say that the muscularis mucosæ will be found continued beneath the point in question in my specimen, whereas, lower down, where the mucous membrane would naturally become squamous, it ceases. Also I would call attention to the absence of sweat glands in those specimens that show the change of epithelium I refer to. Unquestionably, lower down, where the natural change occurs, there are sweat-glands. The muscularis mucosæ is generally hypertrophied. In some of the specimens this change is carried to an extreme.

"Now as regards the vessels. It is not an easy matter to estimate the relative proportions in which arteries and veins are present in the same hemorrhoid, as the arteries are shrunken and empty of blood, whereas the veins are turgid. The arteries are always observed together at the highest part of the hemorrhoid; at least these are always found in that position covered by columnar epithelium. So far as my investigations go, I am inclined to think that a purely venous pile must be of great rarity, I mean one into which no arteries enter at all. I have not as yet come across one.

"The arteries that are present in these specimens are healthy in character; not so the veins. Their walls are thickened, a change due, in my opinion, to inflammation. I adopt this view in preference to the one that the thickening is due to hypertrophy, on the ground that there is evidence of active inflammation in a great many of the specimens, if not in all. Thrombi in all stages of organization may be seen in almost every specimen; a more favorable opportunity for examining organizing thrombi could hardly be imagined. In one specimen a great prolifera-

tion of columnar epithelium will be observed. It is a fair example of what it has become the fashion to call adenoma of the rectum.

"I have not been able to compare my investigations with those of others, for the simple reason that although I have searched every possible source, I have been unable to find a single record of a microscopical examination of internal hemorrhoids.

"The deductions affecting treatment which I draw from the specimens under the microscopes are these. With all those arteries staring you in the face, surely there can be only one rational line of treatment for internal hemorrhoids, and that is prompt removal. Anything like temporizing, any kind of hope that astringents may be of use in effecting a permanent cure, can not be otherwise than wrong. You have here an angioma which must be treated as angiomas are elsewhere—by extirpation. You might as well attempt to cure an aneurysm by the outward application of hamamelis as endeavor to do any real good by injecting this drug up a rectum containing hemorrhoids."

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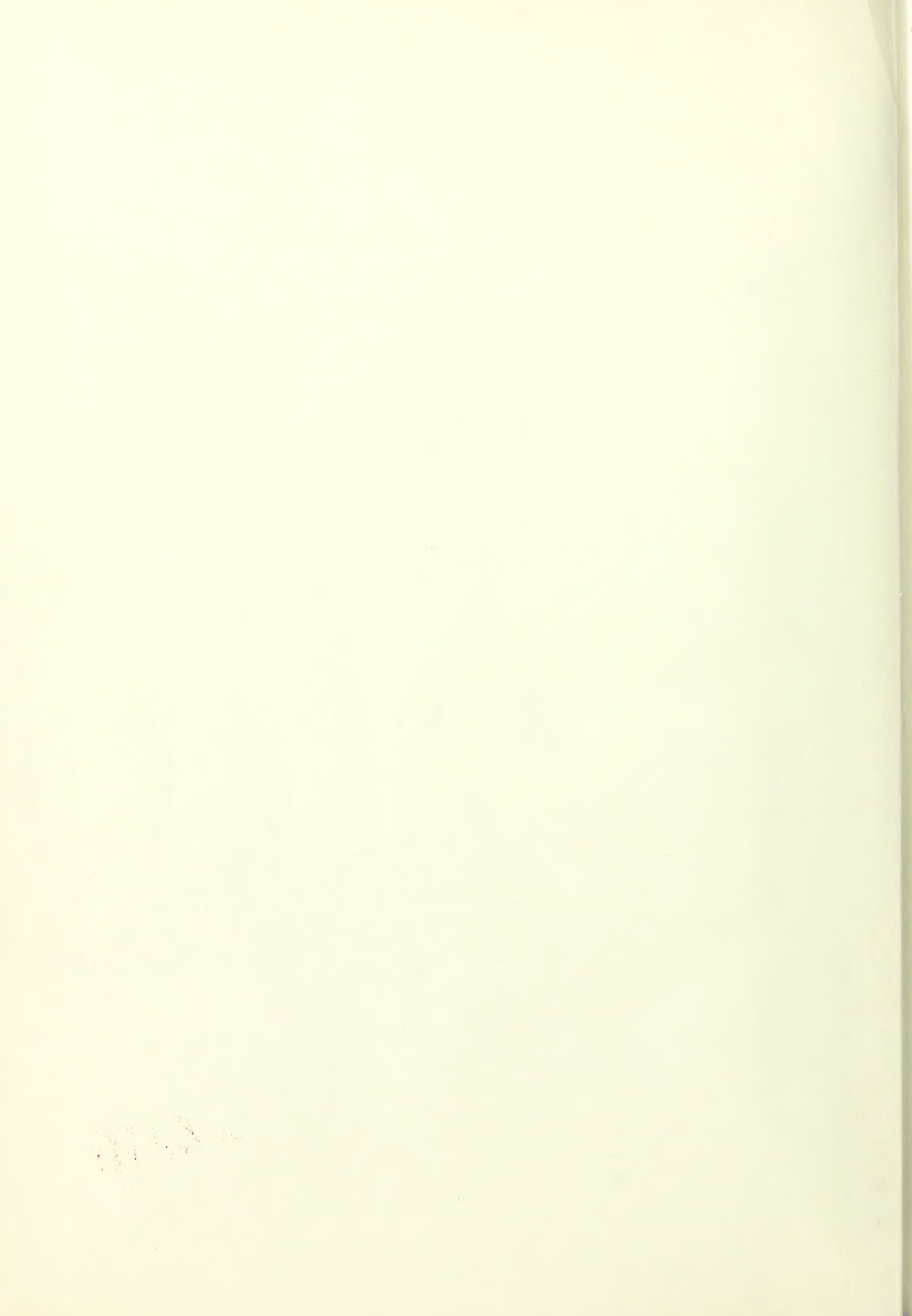
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